THE

ZOOLOGY

OF

THE VOYAGE OF H.M.S. SULPHUR,

UNDER THE COMMAND OF

CAPTAIN SIR EDWARD BELCHER, R.N., C.B., F.R.G.S., ETC.

DURING THE YEARS 1836-42.

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ATTACHED TO THE EXPEDITION.

VOL. I.

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INDEX OF GENERA.

SUMMARY OF THE VOYAGE.

Her Majesty's ship *Sulphur*, accompanied by her consort the *Starling*, quitted the coast of England on the 24th December, 1835, for the purpose of prosecuting surveys and scientific enquiries on the shores and among the islands of the Pacific Ocean. On her way to the Brazils, she touched at Madeira and Teneriffe, and on the 19th February, 1836, anchored at Rio Jàneiro. After a short stay, she sailed for St. Catherine's, which she reached on the 28th. The vessel requiring a thorough refit previous to her doubling Cape Horn, some weeks were consumed here, during which time the vegetation of the surrounding beautiful shores was examined, and the nucleus of the future collections formed. On the morning of the 28th March, she again weighed anchor, ran into Monte Video for a few hours, thence proceeded to Cape Horn, and, after a tedious passage, arrived at Valparaiso, in 33° S. lat., on the 9th June.

The health of Captain Beechey, who had hitherto held the command, being such as to render his return to England necessary, Lieut.-Commander Kellett now took charge of the *Sulphur*, and preparations were actively made for commencing her surveying duties. The expedition, however, did not quit Valparaiso till the 22nd July, and the interval was occupied in examining the natural history of the neighbourhood, and the Botanical Collector extended his researches to St. Jago. On our way to the northward, Callao, the port of Lima was visited for a few days, Payta for a few hours, and we arrived in the Bay of Guayaquil in 2° 47′ S. lat., the point of commencement of our operations, on the 24th August. From this to Panama, in 8° 57′ N. lat., the coast nearly throughout was closely examined, between the months of September to January inclusive. The various small ports were visited and surveyed, and no opportunities omitted to examine the natural productions. The ship, however, being constantly on the move, no means occurred of visiting the interior, and the labours of the naturalists were necessarily confined to the coast.

The arrival of Commander Belcher, by the isthmus of Panama, to take the command, gave a new impulse to affairs, particularly as he was much attached to certain departments of Natural History. His cabin was henceforth applied as a museum, and the dredge now began to be frequently in use. On the 15th March, 1837, the *Sulphur* quitted the Bay of Panama, and proceeded along the coast of Veragua to the northward, during which several places were visited, as calms did not permit of rapid progress. Realejo, in 12° 28′ N. lat., was not reached till the 3rd April, where some short stay was made, and several objects added to the collection; the Botanical Collector also proceeding to Leon. From this she sailed to San Blas, in 21° 32′ N. lat., touching on the way at Libertad and the bay of Manzanilla, and arrived there on the 27th May. The bay and shores were here satisfactorily examined, and a visit to Tepic produced some botanical collections from its vicinity. On the 10th June, the vessel sailed for the Sandwich Islands, where she arrived on the 17th of the following month. During the passage, numerous sea-birds were sometimes noticed, and occasionally patches of sea-weed. The island of Oahu, where is the principal anchorage, has been so frequently visited and examined, that little novelty was to be expected; nor were the labours with the dredge within the reefs very profitable, which is perhaps attributable to the quantity of fresh-water discharges by the numerous streams. Still the period from our arrival till our departure on the 27th July was often very agreeably spent among the lovely valleys. Oahu is situated in 21° 17′ N. lat., 158° 0′ W. long.

After leaving the Sandwich Islands, we rapidly entered a different climate, as our destination was now a high northern latitude. In crossing the North Pacific, great numbers of medusæ and other marine animals were observed. The new features consequent on the change were first witnessed at Rose island, where a party landed for a short time. Here the vegetation and productions were similar in general character to those of home, but had much freshness to us after a residence within the tropics. On the second succeeding day, the 23d August, the vessel anchored in Port Etches, King William's Sound, in 60° 21′ N. lat. The hills around were still covered with broad patches of snow, and the weather was usually wet and uncomfortable. This much retarded our pursuits, and, without much regret, we quitted it for Port Mulgrave, whence, after a visit of a few days, we sailed for Sitka, or New Archangel, in 57° 2′ N. lat. Though the weather was still very unfavourable, the fortnight spent here was busily occupied in examining the neighbourhood, and several short excursions were made through the wet and swampy forest. Conchology was the chief gainer, though the objects obtained by

the dredge were neither numerous nor large. Some interesting birds were also added to the collection. On the 27th September, the expedition left Sitka, and directed its course to Nootka Sound, and afterwards to San Francisco, California, in 37° 47′ N. lat.

An expedition was immediately planned for examining the extensive inland waters communicating with the harbour of San Francisco. With this object, a flotilla of boats started on the 26th October, and the writer accompanied the party in medical charge. The river Sacramento was ascended a very considerable distance from the ship, through a fine alluvial country. Four weeks were thus spent in the open boats, and such collections made as circumstances permitted, and which did not reach the *Sulphur* without certain adventures and hair-breadth escapes. San Francisco and its neighbourhood were in the mean time examined by those who remained with the ship. The vessel finally left for the southward on the 30th November, making a short visit to Monterey, and towards the end of December arrived again at San Blas.

Acapulco, in 16° 51′ N. lat., was subsequently visited, and some interesting additions made to the collections. Thence the vessel proceeded south, ran along the coast, crossing the gulf of Tehuantepec, and using the dredge whenever circumstances permitted. Realejo was regained by the 4th February, 1838, and during the visit an excursion to the Volcano Viejo produced some botanical additions. The coast below was next rapidly examined, and on the 27th March we for a while bid farewell to this part of America, our destination now being Callao; and after a very long passage, only broken by a rapid visit to Cocos Island, arrived at the anchorage on the 3d June. This and the two following months were spent at Callao, or in the examination of the coast to the south, as far as Cerro Azul, and the former was not left before the close of August.

When the *Sulphur* quitted Callao it was to revisit many places previously embraced within the voyage; and though this did not bring new ground under our observation, it yet enabled us to obtain many objects of interest which were not previously possessed. By this time also, from the length of the voyage, and from our inadequate means of preserving them, many of the objects kept in spirits required renewing; and from similar causes a number of valuable things were from time to time lost. In the less perishable portions of the collection we were more fortunate, as our knowledge of the locality was found of practical service, and in the use of the dredge this is often very desirable. Payta, Guayaquil, Panama, and Realejo were thus successively visited, and

the latter was made the centre of some extensive surveying operations on the coast. On the 19th November, the vessel anchored in the Gulf of Fonseca, for the purpose of survey. The town of San Carlos, situated on its shores, is in 13° 21′ N. lat. The examination occupied till the close of the year, and during this time the floor of the gulf was very closely examined: our success was not, however, in proportion to our exertions; and it was thought, that the recent eruption of the neighbouring volcano of Conseguina might have destroyed many of the inhabitants of the sea, and it was the received opinion that the water was more shoal. Molluscous animals were proportionately few, whilst there seemed a greater number of those fish which are usually brought up from the mud by the dredge and trawl, and a fair proportion of crustacea.

On the 14th January, 1839, we entered the Gulf of Nicoya, in 9° 55′ N. lat. which in many respects proved directly the reverse of Fonseca—as far as natural history was concerned. The belt of the gulf was found richly furnished with its peculiar tenants; the waters abounded with multitudes of fish, and at night was endued with a phosphorescence, even brilliant to those accustomed to witness it. Every spot within the influence of the ocean was fertile in the simpler organized beings. Beyond the shores, however, the nature of the country was such, that little could be obtained. Early in March the *Sulphur* quitted the gulf for Panama, touching, on her way, at the bay of Honda and at Quibo. On the 26th we finally bade farewell to Panama, and sailed for the Sandwich Islands. Cocos Island was in the track, and accordingly again visited. A fortnight was spent in the group; and on the 16th June we were again under weigh on another circuit of the North Pacific.

As, on the previous occasion, the northern ocean was noticed to abound in marine animals, and in numbers truly astonishing. A continuous belt of anatifa, upwards of a hundred miles across, was traversed, and velellæ were likewise very abundant. On the 6th July, a few hours were spent at Kodiack, on the peninsula of Alashka, among a glowing and vigorous vegetation. The same evening saw us on our way to Sitka; and, on the 16th, we regained our former anchorage. In a few days the *Sulphur* sailed for the Columbia River, in 46° 16′ N. lat., where she arrived on the 28th. The time spent here was not so productive to our pursuits as might have been expected. The surrounding shores are indeed clothed with a magnificent vegetation, and here there was much occupation. But the extensive bay into which the Columbia river expands, previous to mixing with the ocean, and which was chiefly accessible, is filled alternately by the fresh

water of the river and the salt of the ocean; so that few organized beings select it for a habitation. And in a short time dredging was found so unproductive that it was discontinued. A party ascended to Fort Vancouver and did not return without obtaining a few things of interest. About the middle of September the vessel sailed for California, visiting the Russian settlement of Bodegas for a few days, and afterwards San Francisco and Monterey.

From Monterey to Cape San Lucas the coast of California had been scarcely visited for objects connected with science, and though interest had declined from the tediousness of a much protracted voyage, it was not without satisfaction that we beheld this new field opening to us. The coast between these two places was rapidly inspected, and the ports of Santa Barbara, San Pedro, San Diego, San Quentìn, and San Bartolomè, were each examined. A longer period, nearly three weeks, was however devoted to the survey of the extensive Gulf of Magdelena, in 24° 38′ N. lat., and we here completed our Californian collections. After leaving the gulf, San Lucas was visited, and the vessel then proceeded to Mazatlan and San Blas.

On the 21st December we sailed from San Blas, and with the feeling that we were homeward bound, though with a circuitous route, and two-thirds of the circumference of the globe before us. The immediate destination was the Marquesas Islands, and on the 20th January, 1840, we arrived at the beautiful bay of Port Anna Maria, in the island of Nuhuhiva. The rocky island of Socorro had received a short visit during the passage. On the 30th instant, the vessel again quitted for Bow Island, in 18° 6′ S. lat., one of the Pomoutou group. The object here, the island being formed entirely of coral, was to examine its substructure; and whilst this laborious operation was in progress, the naturalists were left to examine the surface of the island and the lagoon. The land produced little, but the water was more prolific. It was frequently observed that the organized beings were influenced in some respect by the all-pervading coral, though often not in a manner that was very tangible. Fish abounded in great numbers within the quiet waters of the Lagoon, many of which were captured and preserved. Very frequently they might be seen in close attack on the branches of the coral, and the alimentary canal was usually found loaded with finely triturated coral. On the 28th March we were again on the open sea with the Society Islands in anticipation.

We were now about to traverse the South Pacific. On the 5th April, the *Sulphur* anchored at Tahiti, and quitted it again on the 8th May. The Island of Raratonga was next visited. Thence the vessel proceeded to Vavao, one of the northern islands of

the Tonga group; and on the 28th May she anchored at Ambow, one of the Feejee islands, situated in 18° 10′ S. lat. These islands are nearly as little known as any spot we had visited; but the situation of the anchorage to the land, and the character of the population, very seriously contracted our inquiries. Thence we proceeded to Tanna, one of the New Hebrides, and subsequently to Carteret's Harbour, New Ireland, in 4° 41′ S. lat. Among heavy tropic rains, almost incessant, we saw enough of the latter to give much encouragement to future naturalists; and not the least interesting circumstance was the appearance of strong indications of Asiatic productions.

The northern shore of New Guinea was deliberately traversed, and altogether several weeks were spent in the vicinity of this fine island. The coast is not everywhere accessible, and we saw comparatively little of the terrestrial productions; but the shallow water, which extends far from land, was closely searched by the dredge and trawl. Passing through Dampier's Straits, the vessel hastened to the Moluccas, touching at Bouro, and subsequently at Amboina, on the 3d September, situated in 3° 41′ S. lat.

On the 16th, the Moluccas were finally quitted, and crossing the Indian Ocean, a nasty visit was made to Great Solombo, where wild cattle were noticed, and thence we proceeded to Macassar. The Straits, so called, offer facilities for dredging; but the produce was chiefly molluscous animals, owing probably to the coral and gravelly floor. A hasty view was obtained of Pulo Kumpal, on the extreme of Borneo, and the vessel finally arrived at Singapore on the 16th October.

The vessel now retraced her steps, orders being received at Singapore to proceed to China. In a few days we were in the China Sea, tantalized by calms, and with little occupation beyond dredging. Manila was visited for a few days; and early in December, the *Sulphur* became one of the China squadron. The war was not prosecuted so actively as to leave no time for natural history, and the circumnavigation of Hong-Kong gave us an insight into its productions.

The *Sulphur* quitted China for England, on the 21st November, 1841; revisited Singapore, and touched at Pinang, Acheen, and Point de Galle in Ceylon. She quitted the latter place on the 27th January, 1842, and, on the 18th February, arrived at Port Victoria, Seychelles, in 4° 36′ S. lat. On the 24th she was again underweigh for Madagascar; and, on the 9th March, dropped anchor in Majambo Bay, in 15° 14′ S. lat. Six days were here devoted to the observations. The Cape of Good Hope, St. Helena, and Ascension were successively visited. Cape Blanco, on the African coast, was approached, and the dredge used with much success; and the *Sulphur* finally arrived at Spithead on the 19th July.

R. B. H.

MAMMALIA,

BY

JOHN EDWARD GRAY, ESQ. F.R.S. ETC.

KEEPER OF THE ZOOLOGICAL COLLECTION IN THE BRITISH MUSEUM.

From Nature by B Waterhouse Hawkins

Day & Hagh e Lith.rs to the Queen

MAMMALIA.

Family—CEBIDÆ.

The black foreheaded Miriki.—Brachyteles frontatus.

Plate I.—Adult and Young.

Eriodes frontatus, *Gray*, Ann. and Mag. Nat. Hist. 1842, 256.
Brachyteles frontatus, *Gray*, List Mam. Brit. Mus. 10.

Thumb of the fore-hand, none. Fur reddish brown, beneath yellowish brown. Forehead, elbows, knees, and the upper sides of the arms and the fore hands, black. Young like the adult, but with long white hairs on the cheeks, and among the black hairs on the forehead.

Inhab. Central America.

The limbs and feet are very long and slender, even for this slender-limbed genus. The sides and hinder part of the crown of the head, the middle of the back and sides, rump, front edge of the thighs, and hinder part of the legs, and the upper part of the tail, are bright reddish brown, with a rather golden tinge. The middle of the crown of the head, the shoulders, and front part of the sides, the outer side of the upper arms, and the hinder part of the outer side of the legs, are yellower, varying rather in tint, and in parts gradually passing into the darker colour of the back. The forehead, the front and outer side of the fore-arms, the front of the lower parts of the thigh and the knees, and the upper surface of the four hands, are blackish. The cheeks, side of the chin, throat, and chest, are dirty-yellowish white. The face in the preserved specimen is blackish brown with scattered yellowish hairs, which are most abundant on the lips, and longer on the sides of the chin.

The young specimen is like the adult in the general distribution of the colours, but it is much paler and less bright, and the shoulders, front part of the

back, outer side of the upper arms, and the legs, are washed with blackish. The black on the hinder knee, the fore-arms and the hands, is as distinct as in the adult, but the forehead is covered with yellowish hairs with intermixed black ones, which form a small tuft on each side of the middle. The hairs on the lips are longer and rather more abundant than in the adult.

	ADULT.		YOUNG.	
	In.	Lines.	In.	Lines.
Length of the body and head	19	0	11	0
of the tail	31	0	14	0
of the upper arm	8	0	4	0
of the fore arm	9	6	4	0
of the hand	6	0	3	0
of the thigh	7	6	3	6
of the leg	7	6	3	6
of the foot	7	0	3	0

The measurements being taken from stuffed specimens, with only a few of their bones remaining in them, are not much to be depended on.

This " monkey, with its young, was shot by Captain Sir Edward Belcher, on the shores of the harbour of Culebra, Leon."

This species agrees in the distribution of the colours with *Ateles Geoffroyii*, Kuhl, (Beytr. 26,) which has since been called *A. melanochir* by Desmarest, (Mam. 76,) but the body of that species is said to be greyish sooty, and the hairs of the back are described as blackish ash at the base with ashy ochraceous tips; while the hairs of the specimen before me are uniformly rufous brown from the tip to the base in the adults, and yellowish brown in the young. Otherwise, as the specimen described by M. Kuhl is intermediate in size between the two brought home by the expedition, I might have been induced to have considered it as a different age of this species.

The genus *Brachyteles* of Spix having been published several years before M. Isidore Geoffroy's paper on *Eriodes*, I have felt it my duty to adopt the former name.

The white-headed Sapagou.—Cebus hypoleucus.

Simia hypoleuca, *Humb.*, Rec. 337, 356?
Cebus hypoleucus, *Geoff.*, Ann. Mus. xix. 111. Kuhl, Beytr. 37.
Sai a gorge blanche, *Buffon*, H. Nat. xv. t. 9. Audeb. Singes, v. 2. f. 5.

Inhab. Tropical America. Capt. Sir Edward Belcher, C. B.

This is one of the most easily distinguished of the species of this very confused genus, which requires a complete revision, but this can only be done with effect by a person living in the country, so that he might observe whether the slight differences of shade in the colours on which the species have been distinguished are permanent during the different ages of the animals of the same troop and forest. Of the Brazilian travellers, Spix appears to have enjoyed the best opportunities for such a revision; but unfortunately he delayed the composition of his work until his return to Europe, and instead of unravelling the species, he has even added considerably to their confusion.

PITHECIA.

This genus should be restricted, as Spix has done, to the species which are covered with long, dry, crisp, harsh hair, and have a very bushy tail.

Buffon designated them by the name of Saki, and described two kinds of them, which have been defined by systematic writers as *P. leucocephala* and *P. rufiventer*.

Dr. Kuhl, in his monograph of Monkeys, in his Beyträge, described two other species under the name of *P. ochrocephala* and *P. rufibarbata;* but M. Temminck, I suspect without sufficient examination, has considered the specimens on which these descriptions were founded, to be only different ages of the two species described by M. Buffon and M. Geoffroy St. Hilaire.

Spix, in his colossal work on Brazilian Monkeys and Bats, described as new three species under the names of *P. hirsuta, P. inusta,* and *P. capillamentosa:* the latter has been considered, and, apparently correctly, to be the same as *P. rufiventer* of M. Geoffroy and Buffon.

M. Lesson, who does not appear to have had the opportunity of examining a single specimen of the genus, divides the *Pitheciæ* into four sub-genera, each containing a single species; his two first sub-genera contain the animals under consideration.

The first of these sub-genera he calls *P. nocturna,* considering *P. rufiventer* of Desmarest as the type of the species, *P. leucocephala,* Geoffroy, as the first variety, and *P. ochrocephala,* Kuhl, as the young of this variety. *P. rufibarbata,* of Kuhl, constitutes his second, and *P. monachus,* of Geoffroy and Kuhl, his third variety, regarding *P. rufiventer,* Temminck, as a synonym of *P. rufibarbata.*

The second species he calls *P. leucocephala,* considering the Yarkee, *Simia leucocephala,* of Audebert and Humboldt, as the type; *P. hirsuta,* of Spix, as pro-

bably the middle age; and *P. inusta*, of the same author, as the young of this species.

These examples may be considered as a fair specimen of the gratuitous assumption and careless compilation of this author, whose work is put forth as the commencement of a new Species of Mammalia.*

This short sketch of what has hitherto been done, shews that naturalists have had considerable difficulty in distinguishing the species of this genus which have already been described.

We have several specimens of the genus in the British Museum collection, and they very naturally arrange themselves into three very easily characterized species, but, at the same time, though I have not observed any other species in any of the Continental collections, I find it very difficult to apply to two of them with certainty any of the descriptions and figures of the authors before referred to; and therefore I have thought it best, for the purpose of more distinctly characterising the species brought home by Capt. Sir Edward Belcher, to describe the three species and figure those parts of them which furnish the most distinctive characters.

The black Yarke.—Pithecia leucocephala.

Plate II.—Head.

Simia leucocephala, *Audeb.* Sing. vi. 1. f. 2. (not good.)
Simia Pithecia, *Schreb.* t. 32, from *Buffon*, and *Shaw*, Lever. Mus. iv. t. 169. (good.)
Pithecia leucocephala, *Geoff.* Ann. Mus. xix. 117.; *Kuhl*, Beitr. 45.
——— ochrocephala, *Kuhl*, Beitr. 44.
——— inusta, *Spix*, Braz. 15. t. 10.? (var. hands pale).
Saki, *Buffon*, H. N. xv. t. 12.

The head covered with hair. The front half of the head, forehead, sides of the face and cheeks, covered with short yellow hairs, the lips with short white bristly hair. The nose, and a narrow streak up the centre of the forehead nearly naked, blackish. Hair of the back of the head short, black; of the rest of the body, limbs and tail, very long and straight, uniform brownish black; of the hands, short and black.

Inhab. Tropical America.

This species, which appears to have been longest known, is easily distinguished from the other two by the uniform colour of the hair on the head, and the peculiar

* Mastologie Méthodique, Species des Mammifères Bimanes et Quadrumanes. Par M. R. P. Lesson, &c. Paris, 1840. 8vo.

From Nature by B Waterhouse Hawkins

PITHECIA POGONIAS.
Head of PITHECIA LEUCOCEPHALA

Lay'd down by Her Majesty's Command

naked streaks down the centre of the forehead, both which characters are well defined in M. Buffon's figures (Hist. Nat. xv. t. 12).

Buffon, Geoffroy, and Kuhl described the hair on the top of the head as white: one of the specimens, which has been for some years in the collection of the British Museum, and much exposed to the light, is of a yellowish white colour. But the fresh specimens, differing from the other in no other particular, have the hair of this part of a bright yellow colour, as they are described by Kuhl in his *P. ochrocephala;* so that I suspect the description of one species was taken from a bleached, and the other from a fresh specimen.

A few of the hairs on the side of the neck, the shoulders, the fore-arms, and the hinder edge of the thigh are of a brownish colour at the tip, and have a withered appearance; and some of the hairs of the tail are of a brown colour, and have the same appearance for the greater part of their length: but these hairs scarcely alter the general colour of the animal, which is of a brownish black tinge, quite different from the grisled black and brown appearance of the next species, and our specimen scarcely justifies the account of the colour of the hair given by my very accurate friend M. Kuhl.

I strongly suspect that the *P. inusta* of Spix must have been taken from a specimen of this species, though he does not represent the bald streak on the head, and describes the hands as yellowish: but in his description of *P. hirsuta*, (which M. Temminck suspects is the same as *P. inusta*,) he observes, that the hands of the young of that species differ from those of the adult in being whitish, while in the full grown they are yellowish black. The same change may take place in *P. leucocephala*, which does not appear to be a rare species.

The whiskered Yarke.—Pithecia Pogonias.

Plate II.—Animal.

Pithecia Pogonias, *Gray*, Ann. and Mag. Nat. Hist. 1842, 256.

The head covered with hair; face surrounded with black hairs, with yellow tips; forehead, a line up the vertex, and cheeks covered with long close-set yellow hair; hair of the back and limbs blackish, with a broad white subterminal ring, of the feet short and black.

Inhab. Tropical America.

This species is so abundant in the London collections, that one can scarcely conceive that it is not a described species; but, though it agrees with the *Saki* of

Audebert, the *P. rufiventer* and *P. rufibarbata* of Kuhl, and the *P. capillamentosa* of Spix, (Sim. Braz. t. 11,) in the general colour of the fur, and in the greater quantity of rufous hairs on the circumference of the chest, than in the other species; yet neither their descriptions nor figures agree with the colouring of the face of our specimens, which are all very similar to one another, and offer scarcely any variation.

The Yarke.—Pithecia irrorata.

Plate III.

Pithecia irrorata, *Gray*, Ann. and Mag. Nat. Hist. 1842, 256.

The head naked, with only a few very short scattered white hairs, which are rather longer on the front of the ears. Hair of the body very long uniform rigid deep black, with rather long white tips; of the sides of the chest reddish white; of the hands short and white.

Inhab. Tropical America.

The hair rigid, very dense, very long, and curved, the white tips forming a white edge to the face; of the limbs shorter, with shorter tips and less curved.

The head furnishes the most peculiar character of the species; it is nearly bald, and probably flesh-coloured when alive, and only covered with a few scattered very short white hairs, which are rather more abundant on the cheeks, under the eyes and round the mouth, and rather longer and closer just in front of the ears, so as to form very slight whiskers.

Spix's figures of his *Pithecia hirsuta* agree with this animal in many respects; but he describes that species as having short bristle-like yellowish whiskers, from under the eyes to the angle of the mouth, which at once shows that it cannot have been intended for this species, and certainly does not agree with the descriptions of any of the species which have fallen under the observations of either Geoffroy or Kuhl, or with any of the figures which I am acquainted with.

PITHECIA IRRORATA

From Na[illegible]rl Watch[illegible]

LEMUR [illegible]

Family—LEMURIDÆ.

The Crowned Macauco.—Lemur coronatus.

Plate IV.

Lemur coronatus, *Gray*, Ann. and Mag. Nat. Hist. 1842, 257. List Mam. Brit. Mus. 16.

Fur ashy above. Limbs and beneath pale yellowish. Face white, orbits grey. Cheeks and forehead bright rufous, with a large black spot on the crown. Tail thick and blackish.

Inhab. Madagascar.

The fur very soft, but shorter and not so woolly as is usual in the genus. The back is rather ashy; the hair is grey, at the base, darker and nearly black above, with whitish grey ends and minute black tips, which give a black tint to the surface, especially on the rump. The tail is rufous, but the hairs especially those towards the end where they are not worn have a black tip. The limbs are washed with reddish as the back is with black; the chin, throat, and under part of the body are pale reddish ash. The face, including the orbits and front of the forehead, is white; the cheeks, from the angles of the mouth, the temples and a broad lunate band on each side of the forehead, is bright reddish, and in the middle of the crown is a broad rather rhombic longitudinal black spot. The whiskers and the bristles in front of the eyes are black.

	In.	Lines.
Length of body and head	17	0
of tail	22	0
of hind foot	3	6
of fore arm and hands	5	6

The *Lemur rufifrons* of Mr. Bennett (*Proc. Zool. Soc.* 1831, 106.) agrees with this species in the general distribution of the colours, but differs from it in having the black streak on the head expanded between the eyes, and continued to the end of the nose, and in the under part of the base of the tail being also black.

Family—VESPERTILIONIDÆ.

Tribe—Phyllostomina.

As several new genera in this tribe have been discovered by the expedition, I am induced to give a connected tabular view of those at present known, to faci-

litate their discrimination, and to point out what I believe to be the proper locality of the new genera.

The genera of this tribe may be divided into natural sections in the following manner:—

I. The ears close together over the forehead; forehead with a rather deep pit; nose-leaf lanceolate, erect. Tail elongate, produced beyond the interfemoral membrane. Wings from the ankle; lower joint of thumb moderate. India and Africa.

Rhinopoma, *Geoff.*

II. The ears large, united together by a transverse membrane over the forehead; forehead simple, convex; nose-leaf large, erect. Tail none; interfemoral membrane and wings large; wings from the foot; lower joint of thumb elongate. India and Africa.

Megaderma, *Geoff.* The nostrils simple. India.

Lavia, *Gray.* The nostrils each covered by a membranaceous, valvular, longitudinal ridge. Africa.

III. The ears large, united together by a transverse membrane over the forehead; forehead simple, convex; nose-leaf lanceolate, erect; chin with a deep narrow groove. South America.

Macrotus, *Gray.* Interfemoral membrane large, truncate; tail elongate, produced beyond the membrane. Hayti.

IV. The ears separate, on the side of the head; the forehead simple, convex; the nose leaf lanceolate, erect; the chin with a narrow, deep, triangular groove in front; tongue elongate; face elongate. South America.

Phyllophora, *Gray.* Interfemoral membrane large, truncate. Tail short, enclosed; apex superior.

Glossophaga, *Geoff.* Interfemoral membrane deeply cut out; tail none.

Anoura, *Gray.* Interfemoral membrane very narrow, margining the legs; tail none.

Monophyllus, *Leach.* Interfemoral membrane distinct, deeply cut out; tail short, inclosed; apex superior.

V. The ears separate, on the side of the head; forehead simple, convex; the nose leaf lanceolate, erect; chin with a broad triangular bald space in front; face and tongue moderate. South America

Macrophyllum, *Gray.* Interfemoral membrane large, truncated; tail elongate, inclosed, extending to the edge of the interfemoral membrane. Wing from the upper part of the ankle.

Vampyrus, *Geoff.* The interfemoral membrane large, truncated, with three diverging lines; tail none; face rather elongate. Wing from the base of the toes.

Carollia, *Gray*. The interfemoral membrane large, truncated; tail none; face short; feet free to the hinder part of the ankle; thumb long, of two equal long joints; the front membrane of wing broad.

Phyllostoma, *Geoff.* The interfemoral membrane large, truncated; the wing from the ankle; tail moderate, enclosed, apex superior, medial.

I do not know how *Lophostoma*, D'Orbigny, differs from this genus; the tail is short.

Arctibeus, *Leach*. The interfemoral membrane deeply cut in; thumb of a short and long joint; tail none; wings attached nearly to the base of the toes.

Sturnia, *Gray*. The interfemoral membrane very narrow, marginal; tail none; thumb with lower joint short, upper elongate.

VI. The ears separate, on the side of the head; forehead simple, convex; nose-leaf short, simple or bifid, with a deep groove behind it; the chin with a broad triangular bald space in front. Head moderate. South America.

Brachyphyllum, *Gray*. Interfemoral membrane short, deeply cut in, two-rayed; tail very short; nose-leaf ovate, surrounded by a deep groove behind.

Stenoderma, *Geoff.* Interfemoral membrane and tail none; nose-leaf small, nicked in front; thumb elongate, thick, free to the base; feet free.

I do not know how *Desmodus*, Pr. Max., *Endostoma*, D'Orbigny, *Diphyllia*, Spix, differ from this genus. M. Temminck has regarded *Stenoderma* of Geoffroy as a young *Dysopes*, though it has no interfemoral membrane nor tail. Messrs. Blainville and Waterhouse have shown that *Stenoderma* has no true grinders, and the latter describes the intestines as very short and straight. According to Mr. Darwin, these bats attack and suck the blood from living animals; and Mr. Blyth states that the *Megadermata* of India attack and suck the blood from smaller bats.

The Large-eared Phyllophora.—Phyllophora megalotis.

Plate V. fig. 2.

Phyllophora megalotis, *Gray*, Ann. and Mag. Nat. Hist. 1842, 257. List Mam. Brit. Mus. 20.

The groove on the lower lip not fringed on the edge. Fur blackish, rather paler beneath. Nose-leaf large, ovate-lanceolate, longer than broad. Ears very large, as long as the head, rounded.

Inhab. Tropical America.

	In.	Lin.
Length of the body and head	2	0
of the fore-arm bone	1	3

The Black Phyllophora.—Phyllophora nigra.

Plate V. fig. 1.

Phyllophora nigra, *Gray*, List Mam. Brit. Mus. 20.

The groove of the lower lip fringed with minute beards. Fur blackish, rather paler beneath. Nose-leaf moderate, ovate-lanceolate, longer than broad. Ears moderate, rounded, not half as long as the head.

Inhab. Tropical America.

	In.	Lin.
Length of the body and head	2	0
of the fore-arm bone	1	4

The three species of this genus, in the British Museum, may be thus distinguished.

A. The groove in the lower lip fringed with minute beards.

1. *Phyllophora amplexicaudata.*—Nose-leaf small, as broad as high; ears moderate, rounded, not as long as the head; fur brown.

2. *Phyllophora nigra.*—Nose-leaf ovate-lanceolate, longer than broad; ears moderate, rounded, not half as long as the head.

B. The groove of the lower lip simple, not fringed on the edge.

3. *Phyllophora megalotis.* — Nose-leaf large, ovate-lanceolate, longer than broad; ears very large, as long as the head.

Leach's Monophylle.—Monophyllus Leachii.

Dusky brown; under-side rather paler. Tail half as long as the width of the interfemoral membrane. Nose-leaf elongate, ovate-lanceolate.

Inhab. Central America, Realejo.

	In.	Lin.
Length of the body and head	1	5
fore-arm bone	1	4
heel bone	0	2

This species differs from *M. Redmanni* of Leach (*Lin. Trans.* xiii. 76.) in being much smaller, and in having the interfemoral membrane wider, the tail shorter, and the nose-leaf longer than in that species.

From Nature by B. Waterhouse Hawkins

Day & Haghe Lith^rs to the Queen

1 PHYLLOPHORA NIGRA — 2 PHYLLOPHORA MEGALOTIS

The Javelin Phyllostome.— Phyllostoma hastatum.

Vespertilio hastatum, *Pallas*, Spic. Zool. iii. 7.
Vespertilio perspicillatus, *Schreb.* Saught. t. 46. B.
Pteropus hastatus, *Erxl.* Syst. 136.
Phyllostoma hastatum, *Geoff.* Ann. Mus. xv. 177. t. 71.
Phyllostomus maximus, *Pr. Max.* Reise, ii. 444. Abbild.
La Chauve souris fer de lance, *Buffon*, H. N. xiii. 206. t. 33.

Inhab. Tropical America, Realejo, Capt. Sir E. Belcher.

This species, which is the largest, and one of the most common of the American Nose-leaved Bats, varies considerably in colour. The variation may depend on the season of the year, or on local peculiarities, but certainly not on sexual distinction, for the specimens of the same sex are not similar in this respect. Thus, some males are nearly black, and bright rufous beneath, while others, which are more rufous above, are grey beneath; and a female from the same locality is rufous on the back, and rufous-grey on the under side.

All the varieties may always be distinguished by their more rufous colour, and rather larger size, from *P. fuliginosum* (*Gray*, Mag. Zool. and Bot. ii. 6.), which is the only species that can be confounded with it, on account of the stoutness of the body and general size of the species, which more nearly resemble those of the *Pteropi*, than any other known Bats.

The Elongate Phyllostome.—Phyllostoma elongatum.

Plate. VIII. fig. 2.

Phyllostoma elongatum, *Gray*, Ann. and Mag. Nat. Hist. 1842, 257.

The front of the lower lip with a large triangular space, divided by a central groove. Ears large, rounded at the end. Fingers acute. Nose-leaf elongate, lanceolate, tapering. Thumb elongate, lower joint longest.

Inhab. Tropical America.

The thumb is elongate and slender; the lower joint is rather longer than the upper one, and the membrane of the front margin of the wing is broad, and attached to the articulation of the first joint of the thumb, The wing arises from the middle of the ankle. The heel bones elongate. The fur soft; hair of the

back elongate, brown, pure white at the base; of the under-sides uniform grey-brown the whole of their length; the membranes are dark-brown, more transparent, and thin near the bones of the legs.

	In.	Lin.		In.	Lin.
Length of the body and head	2	0	Length of the heel bone	0	4½
fore-arm bone	1	2	thumb	0	4
shin bone	0	6	nose-leaf	0	4
feet	0	4			

The great difficulty that is generally experienced in distinguishing the species of this genus, induces me to give the following table of the distribution of the species which are contained in the British Museum collection, which also shows, at one view, the means by which the species now described differs from its congeners.

A. Front of the lower lip with a large triangular space, with a central wart, surrounded by one or two series of smaller warts. *P. hastatum, P. fuliginosum, P. Childreni, P. soricinum, P. lanceolatum.*

B. Front of the lower lip with a large triangular space, divided by a central groove, the lower joint of thumb longest. *P. elongatum.*

C. Front of the lower lip with a small triangular space, divided by a central groove. *P. Bennettii.*

The Large Tragus Carollia.—Carollia verrucata.

Plate VIII. fig. 3.—Head.

Arctibeus verrucatus, *Gray*, List Mam. Brit. Mus. 19.

Fur sooty-brown, above and below. Ears rather large, ovate, rather acute. Tragus moderate, ovate, trigonal, acute, with a slight notch on the outer side near the top, and contracted at the base. Nose-leaf ovate-lanceolate.

Inhab. Tropical America.

This species agrees, in general colouring, with the only hitherto known species of the genus, *C. brachyotis* (Pr. Max. Abbild.), but differs from it in having considerably larger ears, and an ovate triangular, acute-tipped tragus;—while Prince Maximilian of Neuwied, describes and figures his species as having "short, broad ears, a very small tragus, with a strongly rounded tip."

From the imperfect state of the specimen, I was inclined, at first, to consider it as a species of *Arctibeus*, but, the peculiar character which it exhibited in the formation of its thumb, and the freeness of the feet, compared with the other species of that genus, induced me to relax the specimen afresh, when it proved to be a *Carollia*, and, at once, showed the advantage of separating that genus.

The hair of the back is blackish at the base, with a broad pale sub-terminal band, and dark brown tips, that of the under side has a much narrower pale band. The wings are dark brown, and the lower part of the under side of the forearms is covered with hair like the body.

	In.	Lin.		In.	Lin.
Length of the body and head	2	0	Length of the heel bone	0	4
fore-arm	1	4	foot	0	$5\frac{1}{2}$
thigh bone	0	$6\frac{1}{2}$	thumb	0	$5\frac{1}{2}$

STURNIRA.

Sturnira, *Gray*, Ann. and Mag. Nat. Hist. 1842. 257.

The tail and interfemoral membrane wanting. Nose-leaf lanceolate, simple. Tragus distinct. Inner surface of the lips bearded on the sides. Hind feet large, free, the wing arising from the hinder part of the ankle; heel-bone none; thumb large. The lower lip with a single large wart, surrounded by a series of smaller ones. Males? with a tuft of hairs on the side of the neck near the base of the wings, like an epaulet.

This genus is easily known from *Arctibeus* by the narrowness of the interfemoral membrane, which is completely hidden by the hair of the legs, while in the latter genus it is well developed, but not notched out in the centre. It differs from *Anoura*, Gray, by the shorter face and the absence of the deep groove on the lower lip, and from *Monophyllum*, which also has the groove on the lower lip, by the absence of the tail. It has much the general external form of *Desmodus*, but differs from that genus in having a lanceolate erect nose-leaf.

The tuft of hair above the base of the wings is found also in the *Epomophori* among the fruit-eating Bats, and also in some of the *Taphozoi* among the *Noctilionina*. They are generally distinctive of the male sex, and secrete an unctuous fluid.

The Sturnira.—Sturnira spectrum.

Plate VI. Fig. 1.

Sturnira spectrum, *Gray*, Ann. and Mag. Nat. Hist. 1842. 257. List Mam. Brit. Mus. 18.

Fur brown, with darker tips to the hairs; beneath pale whitish. Streak from the orbits to the nose; the upper part of the fore-arm and sides of the body near the wings blackish. Epaulet tuft large, bright yellow (in male?). The nose-leaf erect, lanceolate-ovate, about as broad as high; the lower lip with a flat triangular wart in front, surrounded by a series of small roundish warts beneath, forming a broad triangular space.

Inhab. Tropical America.

The thumb is elongated, the ears moderate, acute at the tip, with an obscure sinuation in the middle of the outer edge, and the lobule is indistinctly marked. The tragus is moderate, triangular, acute, with a small tooth-like lobe on the lower part of the outer side.

The back is grey-brown, the hairs grey, with rufous brown tips. The head and lower side of the body are rather paler, wanting the brown tips to the hairs; the side of the nose, upper part of the orbits, and side of the forehead to the base of the ears are darker; the longer hairs on the axilla and side of the body are blackish, and there is a broad rather darker band from the axilla across the chest, and another narrower one across the base of the thighs; the tuft of long thicker hairs on the side of the neck, between the ears and the base of the wings, is dark golden yellow. The upper surface of the fore-arm and the lower half of the under side, and both surfaces of the legs, are covered, and the under-side of the wings near the axilla is furnished with scattered hair.

	In.	Lines.
Length of the body and head	3	6
of the fore-arm bone	2	0
Expanse of the wings	11	0

Tribe—Noctilionina.

For the purpose of showing the natural relations, and the distinctive characters of the two new genera figured, it has been considered advisable to give the following synopsis of the distribution of the genera referred to it, founded on an examination of the extensive collection of species of Bats, especially of this tribe, contained in the British Museum.

The tribe is easily distinguished from the other Bats by the absence of any

From Nature by D Waterhouse Hawkins

1. STURNIRA SPECTRUM ___ 2 MOSIA NIGRESCENS

defined leaf-like expansion on the nose, by the length and narrowness of their wings, and by their having simple circular nostrils, without any nasal grooves behind them. The latter character at once separates them from the true Bats.

I. The tail short, with the tip on the upper surface of the large interfemoral membrane. Ears lateral, separate.

A. Head conical. Forehead flat. Lips simple.

Mosia, *Gray*.—Nose simple, truncated. Lips rather swollen. Nostrils simple. Interfemoral membrane truncate. Cutting teeth $\frac{2 \cdot 2}{6}$.

Mystacina, *Gray*.—Nose rather produced, surrounded at the base with a series of short rigid bristles. Interfemoral membrane truncated. Cutting teeth $\frac{2}{6}$, upper large. *M. tuberculata*, New Zealand.

Aello, *Leach*.—Head subconic. Interfemoral membrane large, truncated. Tail elongated, with a band from the tip. Cutting teeth $\frac{2}{4}$; upper large chisel-shaped. *A. Cuvieri*. It wants re-examination.

Emballonura, *Kuhl*. (Proboscidea, *Spix*.)—Nose rather produced. Nostrils tubular. Interfemoral membrane truncate. Cutting teeth $\frac{2 \cdot 2}{6}$.

Centronycteris, *Gray*.—Nose rather produced. Nostrils tubular. Interfemoral membrane produced, conical. Heel-bones very large. Cutting teeth ——.

Urocryptus, *Temm*.—Nose rather produced. Nostrils tubular. Interfemoral membrane truncated. Cutting teeth $\frac{0 \cdot 0}{6}$. *U. bilineatus*, Surinam.

Diclidurus, *Pr. Max*.—Nose simple, rounded, hairy. Interfemoral membrane very large, truncated. Heel-bones very long. Tail elongate, with the two last joints enlarged, forming a bivalve cavity, with a muscular band from between them to the knee joint on each side; the penultimate joint of the tail oblong transverse, the last one conical, both horny. Thumb elongate, lower joint long, webbed to the end; upper joint very short, rudimentary.

B. Head conical. Forehead with a deep pit. Lips simple.

Taphozous, *Geoff*. — Interfemoral membrane produced, truncate. Cutting teeth $\frac{0 \cdot 0}{4}$. Throat of the males with a large pit.

C. Head conical. Forehead simple. Lips large, dependent, warty.

Noctilio, *Linn*. (Calæno, *Leach*.)—Interfemoral membrane very large, produced, truncated. Cutting teeth $\frac{4}{2}$ or $\frac{2}{2}$.

D. Head conical. Nose and chin ornamented with membranaceous folds.

Phyllodia, *Gray*. — Nose truncated, edge acute, with a fleshy leaf-like process above; nostrils beneath. Chin with a transverse membranaceous fold on the front edge. Ears lateral. Interfemoral membrane truncated. Tail short. Feet free. *P. Parnellii*, Jamaica.

Chilonycteris, *Gray*.—Nose truncated, upper edge fringed, nostrils beneath. Chin with two transverse membranaceous folds on the front edge. Ears lateral, narrow, acute, with a notch on the outer edge. Interfemoral membrane large, truncated. Tail long.

Mormoops, *Leach.*—Nose and chin ornamented with complicated membranaceous ridges. Ears large, broad, nearly united. Interfemoral membrane large, truncated. Feet free.

II. Tail produced beyond the end of the conical produced interfemoral membrane. Wings only affixed to a narrow line along the back.

Pteronotus, *Gray.*—Ears lateral. Chin with two transverse membranaceous ridges. Feet free.—*P. Davyi,* Trinidad.

III. Tail thick, elongate, produced beyond the end of the short transversely folded interfemoral membrane.

Myopteris? *Geoff.*—Ears separate on the side, large. Muzzle short, blunt. Cutting teeth $\frac{2}{2}$.

Cheiromeles, *Horsfield.*—Ears separate on the sides. Muzzle obliquely truncated. Lips smooth? Cutting teeth $\frac{2}{2}$.—Java.

Nyctinomus, *Geoff.*—Ears large, close together, folded down on the forehead. Muzzle obliquely truncated. Lips large, transversely grooved.

Molossus, *Geoff.*—Ears large, close together, folded down on the forehead. Muzzle rounded. Lips swollen, smooth or hairy.

IV.? Tail none. Interfemoral membrane distinct, deeply cut in. Head rounded. Face distorted by cartilaginous ridges. Wings broad. Perhaps near *Phyllostomina?*

Centurio, *Gray.*

MOSIA.

Mosia, *Gray*, Ann. and Mag. Nat. Hist. 1843. 117.

Cutting teeth $\frac{2\cdot2}{6}$, the upper far apart, inner large, oblique, the outer very small. Head small, hairy. Forehead flattened, rather concave in front. Lips rather thick, lower with two triangular warts in front. Nose rounded; nostrils apical, roundish, not produced, and without any groove on their hinder edges. Ears moderate, lateral. Tragus elongate, well developed. Wings thin. Thumb small, slender, the first joint very short, webbed. Interfemoral membrane large, truncated. Heel bone rather long. Tail slender, tip produced on the middle of the upper surface of the membrane. Hind feet small, attached to the wing to the base of the outer toes. Toes subequal, slender.

This genus has all the external appearance of a *Vespertilio,* but it has the simple nostrils of *Noctilionina,* and the tail of an *Emballonura.* It differs from the latter genus in the nose not being produced and truncated, and in the nostrils not being tubular. It appears to be somewhat intermediate between the two tribes of *Vespertilionina* and *Noctilionina.*

When I first examined the specimen, I believed there were only two cutting teeth in the upper jaw, but, on re-examination, and pressing down the gums, two

1. DICLIDURUS FREYREISSII. — 2. PHYLLOSTOMA ELONGATUM. — 3. CAROLLIA VERRUCATA

other very small rudimentary teeth, close on the outer side of the two longer ones, were discovered. It is probable that these teeth fall out when the animal attains its full size; indeed, the constant changes which take place in the cutting teeth of bats during their growth, and the uniformity that exists in the grinders, renders the teeth of but secondary importance in the distinction of species, and of but very little use in the construction of genera.

It is probable that *Vespertilio canina*, of Prince Maximilian, the *Emballonura canina*, Temm. Monog. ii. 298. may belong to this genus.

The Mosia.—Mosia nigrescens.

Plate VI. fig. 2.—2 A. and 2 B. Head.

Mosia nigrescens, *Gray*, Ann. and Mag. Nat. Hist. 1843. 117. List Mam. Brit. Mus. 34.

Dark brown, paler beneath. Interfemoral membrane with scattered hairs beneath. Ears rather large, broad, rather acute at the tip, nakedish; hairy at the lower part; lobule indistinct. Tragus oblong, linear, rather curved, rounded at the end.

Inhab. South America.

	In.	Lin.
Length of the body and head	1	7
tail	0	4
shin bones	0	5
fore-arm bones	1	3¼

	In.	Lin.
Length of the heel bone	0	4½
ear, front edge	0	4
tragus	0	2

The Diclidure.—Diclidurus Freyreissii.

Plate VIII. Fig. 1, and 1 A.

Diclidurus Freyreissii, *Pr. Max.* Isis, 1819, 1629. *Gray*, List Mam. Brit. Mus. 36.
D. albus, *Pr. Max.* Beitr. Naturg. Braz. ii. 242. Abbild. t. *Temm.* Monog. ii. 303, t. 60. f. 16. copied from *Pr. Max.*

Inhab. Pueblo Nuevo, Central America.

This Bat has been hitherto only known from a single specimen discovered by M. Freyreis, who found it at the mouth of the Rio Pardo. The specimen is now in the collection of the Prince de Wied, at Neuwied, on the Rhine. The Prince's specimen had been injured and was imperfect, especially about the head, which has rendered it necessary that the animal should be re-figured, as the ears are much larger, and the feet-bones are much stronger, than they are represented in his plate.

The interfemoral membrane is very large, truncated behind, and supported on each side behind by a very long and strong heel-bone; it appears in the

dry specimen to have been frequently folded across at the knee-joint, forming a kind of pouch in front, when the feet are bent up. The tail is elongate,* formed like the tail of other *Noctilionina*, and extending about half the length of the interfemoral membrane, the apex being on the upper surface; the basal joints are of the usual form; the two last joints, on the contrary, are expanded, hollow, horny, and black, the penultimate joint being broad and crescent-shaped; the last joint triangular, cordate, and fitting into the crescent in the hinder edge of the preceding joint. These joints are surrounded by very thin skin; the joint immediately before them tapers in front; the folds in the membrane before referred to, come between the two concave joints of the tail, so that when the membrane is bent up, one must be folded against the other. The ears are large, rounded, nakedish, hairy at the base externally; the front of the upper part of the conch being bent down and attached to the face over the eyes, the lobule is continued and produced in front of the chin to under the eyes, but scarcely raised or separated from the rest of the conch by a notch; the tragus is moderate, rounded at the end, contracted at each side at the base. The hairs of the back are pure white to the base, those of the under surface are lead-colour for the lower third of their length, the rest being white like those on the back. The colour of the fur is peculiar, as being very rare among mammalia, except those which are kept in confinement, or are afflicted with the albino disease, or live in the regions of perpetual snow. It is indeed the only example which occurs to me of a tropical species of Mammalia being of that colour.

This specimen, brought home by Captain Sir Edward Belcher, C.B., was caught by Mr. Barclay, the botanical collector who accompanied the Voyage, on the 27th of March, 1837, at Pueblo Nuevo, in Central America. It appears to be only the second specimen of this peculiar Bat which has hitherto reached Europe.

From the examination of the figure given by the Prince de Wied, I was induced to arrange this genus, with doubt, at the end of the *Vespertilionina;* but the examination of the specimen has shown that its proper place is near the *Emballonuræ*, being even more typically *Noctilionine* than them in having such very long and narrow wings.

Centurio.

Centurio, *Gray*, Ann. and Mag. Nat. Hist. 1842, 259.

Head rather large. Face flattened and covered with various symmetrical pleats; chin produced; lip ciliated within at the angle of the mouth; nostrils separate, placed on each

* Misled by the figure in my "Revision," I erroneously stated the tail to be very short; and M. de Blainville (Ann. Sci. Nat. viii. 362) described it as having no tail

Lithoint from Nature by Waterhouse Hawkins.

C Hullmandel's Patent.

Centurio Senex · Amboina Nat Size.

side of a triangular subcordate pleat, with raised edges on the side and behind, but without any edge below. Ears large, with a large separate oblique fold at the base of the upper edge of the conch; the lobule conical, erect; the tragus short, denticulated. Limbs strong; the interfemoral membrane deeply cut out; the heel-bone short, strong; tail none. Feet rather large, united to the wing to the base of the inner toe; toes equal. Wings broad, moderately thin; the membrane between the two inner fingers, and the inner finger and the fore-arm with regular parallel, transverse fibres, contracting the membrane into fine regular close cancellated plaits; the middle finger with four bony joints; the thumb elongate, slender, the lower joint short, webbed; upper longer, free. The cutting teeth $\frac{1111}{4}$ small; upper conical, far apart; lower close together, truncated; canine large; grinders large, with very acute conical tubercles. Fur soft, brown, with a pencil of white hairs on each shoulder.

This genus offers the most grotesque and distorted appearance of any Bat yet known. At first sight one might be induced to consider it an ill-shaped monster, such as are sometimes found among young domestic animals; but on examination all the wrinkles and distortions are found to be regular, each having its fellow on the opposite side of the face, and the organs are all well developed, it being only one of those strange developments of form which our limited knowledge does not allow us to comprehend. The muscular structure of the wing is as peculiar and beautiful as the face is extraordinary and grotesque.

The place of this genus in the family of Bats is not easy to determine, and for the present I have been induced to arrange it near *Chilonycteris* and *Mormoops*, in *Noctilionina;* but it is proper to observe, that this position is only temporary, for to fix it in this locality it is necessary to believe that there are several genera yet undiscovered which intervene between it and them.

The number of joints in the middle finger would show some affinity to the genus *Phyllostoma*, and other American genera of that tribe, which are peculiar in having four, while all the other Bats have only three; but the face, though wrinkled, has no pretension to having a distinct nose-leaf, any more than the genus *Mormoops*, though Dr. Leach, misled by the wrinkles, arranged that genus with the leaf-nosed bats.

The Wrinkled-faced Epaulet Bat.—Centurio Senex.

Plate VII.

Centurio senex, *Gray*, Ann. and Mag. Nat. Hist. 1842, 259. List Mam. Brit. Mus. 34.

Fur pale brown, tips of the hairs whitish; beneath paler; small epaulet-like tuft on each side pure white. Wings near the fore-arm bone and the legs covered with hair. Membrane between the index and middle finger transparent white.

Inhab. Amboyna??

The nostrils have a high, convex, ovate tubercle between them, ending above

and below in a slight acute tip, each surrounded on the outer side by a half-ovate raised edge, bent in towards the tubercle at the tip, and bent outwards on the edge of the lip, having two tubercles on the upper part of the outer edge, each furnished with a single bristle, and giving off a slight curved process on the middle of the upper edge, and each ending in a small tubercle bearing a similar bristle. The eyes are surrounded with a raised ridge, bearing two or three similar bristle-bearing tubercles; the ridge from the upper edge of the eye-lid is extended towards the middle of the face, and is then sharply turned up at an angle before it reaches the central line, and after a short space bent round at top towards the outer edge of the front of the two lunate cross ridges on the forehead; behind the larger upper cross ridge on the forehead is a slight cross fold with a swollen hinder edge; the upper edge of these ridges, and the tip of the lobule of the ear is dark brown and callous. The chin projects beyond the mouth, and is keeled below; the cheeks, chin, and throat are covered with various symmetrical wrinkles, and on the middle of the chin is a rather broad, and on the top of the ridge on each side of the chin is a narrow, horny plate.

Captain Sir Edward Belcher informed me that this Bat was found in Amboyna; but Mr. Hinds does not appear to be confident on the subject, and rather suspects it came from South America. It was taken from a bottle containing animals from both countries. It is much to be desired that in expeditions the simple plan of numbering all the specimens, and recording the habits and locality in the Journal, so successfully practised by Mr. Darwin, should be adopted, as the possession of the true locality of the specimens renders those collected by private individuals, whose accuracy can be depended on, so much more valuable than the specimens procured through dealers, who often have an interest in mystifying their history.

Tribe—Pteropina.

As it has been thought advisable to form a sub-genus for one of the species of this Tribe, brought home by the officers of this Surveying Voyage, the following synopsis of the genera of the tribe has been given, to show how the new one is separated from them, and its position and affinities determined.

I. Wings from the side of the back. Head very long, tapering. Tail none.

Macroglossus, *F. Cuv.*—Lower joint of the thumb elongate. Wings on the back of the feet, to the base of the toes.

II. Wings from the side of the back. Head elongate. Index finger clawed.

Pteropus, *Geoff.*—Tail none. Lower joint of thumb very short.

Epomophorus, *Bennett*.—Tail none. Neck with a tuft of hair on each side. Lower joint of thumb very long, webbed. *E. Whitii*, *E. Gambianus*.

Eleutherura, *Gray*.—Tail short, free, in a nick on the middle of a narrow interfemoral membrane. Lower joint of the thumb ——? Neck without any glands on sides. *E. Hottentotta*.

Xantharpyia, *Gray*.—Tail with the base inclosed in the underside of the interfemoral membrane. Neck without any glands. Lower joint of thumb rather elongate.

III. Wings from the side of the back. Head short, swollen. Nostrils tubular. Grinders 4-5.

Cynopterus, *F. Cuv.* (Pachysoma, *I. Geoff.*)—Tail short, inclosed in the interfemoral membrane. Lower joint of thumb elongate. Wings attached nearly to the base of the toe.

Megæra, *Temm.*—Tail none. Lower joint of thumb very short. Wings attached nearly to the base of the toe.

IV. Wings from the middle of the back. Head short, swollen. Nostrils tubular. Index finger clawed.

Harpyia, *Illiger*.—Tail elongate, free at the end. Lower joint of the thumb elongate. Wings attached nearly to the middle of the outer toe. *H. Pallasii*.

V. Wings from the middle of the back. Index finger not clawed. Head elongate, conical.

Cephalotes, *Geoff.*—Tail inclosed at the base. Interfemoral membranes with a diverging muscular band on each side to the thighs. Lower joint of the thumb elongate, as long as the upper.

The latter genus has much the general characters of *Pteropus*, and would thus appear to unite together the two extremities of the series.

The relative proportion of the two joints of which the thumb of the wing is composed, affords a very good character for the determination of the genera among the *Noctilionine* and *Pteropine* Bats. The lower joint being always affixed to the wing by a web which reaches to a little above the base of the upper joint, so that it, at the same time, indicates the width of the membrane on the front edge of the wing. It is the more necessary to make this remark, as M. Temminck, who appears to pay so much attention to the osteological characters of genera and species of bats, erroneously remarks: "Chez les *Cheiroptères Insectivores* la pouce des ailes est toujours tres court, composé d'une seule articulation et de l'ongle avec sa phalange."—*Monog*. ii. 51. In this difficult group, any character that will assist in separating the species into small groups is of consequence.

The silvered Kalong—Pteropus argentatus.

Pteropus argentatus, *Gray*, List Mam. Brit. Mus. 194.

Black-brown. Back very minutely grisled. Under-side with some longer silver-tipped hairs. Head slightly washed with yellow, especially on the temple and orbits. Side of the forehead, nape, and back of the neck, bright golden yellow.

Inhab. Amboyna??

The hair of the back of the neck is black-brown at the lower half of its length, the black of the face forms a streak up the middle of the forehead. The under-side of the fore-arms and the wings, near the fore-arms and sides of the body are hairy. The thigh rather hairy. The ears moderate, rather acute, exposed. The silver-white tips to some of the longer hairs of the under-side, give a peculiar appearance to this species, and render it distinct from all the varieties of *P. funereus*, described by Temminck.

	In.	Lin.
Length of the head and body	10	6
fore-arm bone	5	0
fore-legs bone	2	0

It is to be regretted that the habitat of this species has not been recorded.

The Xantharpyia.—Xantharpyia amplexicaudata.

Pteropus amplexicaudatus, *Geoff.* Ann. Mus. xv. 96. t. 7.—*Temm.* Monog. i. 200. t. 13. copied from *Geoff.* vii. 90. t. 36. f. 18—19, skull.
Xantharpyia amplexicaudata, *Gray*, List Mam. Brit. Mus. 37.

Inhab. Amboyna.

Two specimens of this species were brought home by the Expedition. It differs from the other *Xantharpyiæ* by the length of the tail and the nakedness of the back.

MUSTELA XANTHOGENYS.

Family—FELIDÆ.

The Yellow-Cheeks Weasel.—Mustela xanthogenys.

Plate IX.

Mustela xanthogenys, *Gray*, Ann. and Mag. Nat. Hist. 1843. 118. List Mam. Brit. Mus. 16.
Mustela Braziliensis, *Sevast.* Mem. Acad. Petersb. iv. 356. t. 4.? (very bad.)
Mustela Javanica, *Seba*, Thesaur, i. 77. t. 48. f. 4.? (bad.) *Zimmerm.* G. G. 11. 308.? *Fischer*, Syn. Mamm. 222?
Mustela Erminea, var. *Pallas*, Zool. Ros. Asiat. 92.? note, from Seba's original specimen.
Viverra Javanica, *Brisson*, R. A. 245.? from Seba's fig.

Bright chesnut; beneath golden-yellow; chin, small spot above the angle of the mouth and feet white. Spot under the ear yellowish white; spot behind the angle of the mouth towards the throat chesnut. End of the tail black.

Inhab. North-west coast of America, California.

The *Mustela Javanica* of Seba, Thes. i. 77, t. 48, f. 4, which passed into the hands of M. Meyer of Amsterdam, where it was examined by Pallas, (Zool. Ross. Asiat. 92.) appears to have been very similar to this species; and as Seba was very often misinformed respecting the real localities of his species, it is not impossible that it may be the same.

This species agrees in many parts with the figures of *Mustela Braziliensis* of Sevastianoff, published in the Memoirs of the Petersburg Academy, 1811, iv. 356, t. 4, but I cannot find in our specimen any tendency to green in the colour. The spot between the eyes is indistinct and irregular, and it does not well agree with his description in other particulars, but this may arise from the bad condition of M. Sevastianoff's specimen, the hairs of which, he says, fell off with the least handling. His specimen was brought home by M. Krusenstern. The particular locality is not given, and M. Sevastianoff's figures are very ill drawn.

Should both these descriptions belong to this species, it is impossible to keep either of the names which have been given it, as they both give an erroneous idea of the habitat of the species. This animal is intermediate in character between the common Stoat (*M. Erminea*), and the Black-faced Ermine (*Mustela frenata*, Licht. Saugeth,) from Mexico, the head of which is engraved for the sake of comparison on the same plate, t. 9.

The Coyote.—Canis ochropus.

Plate X.

Canis ochropus, or Cojote, *Eschscholtz*, Zool. Atlas, part iii. t. 11. *Rich.* Zool. Beechey Voy. v. n. 23.
Gray, List Mam. Brit. Mus. 59.
Canis latrans, var.? Proc. Zool. Soc., 1833, 97. *Rich.* Zool. Beechey Voy. 11.
The Coyote, or Cojote, *Venegas*, Noticia de la California, 1758, Map, upper right-hand figure.
Coyote, or Fox, *Venegas*, Nat. and Civil Hist. of California, London, 1759, part iii. t. 2. upper figure.

This species is noticed by Venegas, and figured in the margin of the map of his work. It has also been figured in my late friend M. Eschscholtz's very interesting Zoological Atlas of the Animals discovered during Captain Kotzebue's second voyage round the world; but the former figure is very small, and will serve for any dog as well as the *Coyote*, and the latter having been taken from a badly preserved specimen, is so little characteristic of the species, that I have thought it desirable that it should be again figured, that the question of its presumed identity with the Prairie Wolf might be set at rest.

In the Proceedings of the Zoological Society, (I. 97.) for August, 1833, it is stated, that the skins of the *Coyote*, obtained in Mexico by Captain Colquhoun, were identical with the Prairie Wolf of Say.

The specimen of the *Coyote*, brought from California by Captain Sir E. Belcher, now in the British Museum, is quite distinct from the specimen of the Prairie Wolf from North America in the same collection. Its face and ears are considerably longer than that species, and the general tint is darker.

"Very numerous about San Francisco, and quite a pest to the residents, from its daring predatory habits. In the day they often showed us a bold front, and during the night scour the plains, making the most terrific howlings."—Ed.

Family—URSIDÆ.

Procyon Psora.

Plate XI. Animal.—Plate XVII. f. 1, 2, 3. Skull.

Procyon psora, *Gray*, Ann. and Mag. Nat. Hist. 1842, 261. List Mam. Brit. Mus. 74.

Yellowish brown and grey, grisled. Face, temples, sides of the neck, chest, belly, and sides of the body dirty yellow. Forehead, cheeks under the eyes, each side of the throat and back of the ears, dark blackish brown. Fur rather long, close, dark brown; longer hairs yellow-white, those of the back, shoulders, and head, brown tipped. Tail short? perhaps destroyed.

Habitat California, Sacramento.

From Nature by B Waterhouse Hawkins

Day & Haghe Lith^rs to the Queen

CANIS OCHROPUS.

½ Nat^l Size

	In.	Lines.
Length of the body and head	27	0
of the tail	3	0
of the hind foot	4	6

The face is short and broad. The front upper tubercular grinder square, as long as broad; the second rather broader than long, slightly narrowed on the inner side, the last ovate, triangular, transverse. The teeth of the specimen were much worn; the canines are conical, not grooved.

This species is easily known from all the others of the genus hitherto described, by the shortness of the tail and the height of the legs. I am not certain that the tail of the specimen may not be imperfect, though there are no appearances of its having been longer, and Mr. Hinds informs me that he believes all the specimens seen were like the one here figured. It also differs from the other kinds in the distribution of the black on the lower side of the head.

"Several individuals were seen on the banks of the Sacramento, during the expedition up that river, and were represented by the natives as very expert in capturing the wild geese and ducks."—Ed.

Family—JERBOIDÆ.

Captain Belcher's Squirrel.—Sciurus Belcheri.

Plate XII. Fig. 2.

Sciurus Belcheri, *Gray*, Ann. and Mag. Nat. Hist. 1842, 263.
——— Douglasii, *Gray*, Proc. Zool. Soc. 1836, 88.? *Waterh.* Cat. Mam. Zool. Soc. 46.?

Black, minutely dotted with bright yellow. Sides of the head, and outside of the limbs, more orange. The feet dark bay. Edge of the eyes, and under-side of the body, bright orange; Lips and throat paler. Streak along the side of the body, between the two colours, pure black. Whiskers black. Ears hairy, slightly pencilled. Tail flat, rather narrow, black and red, varied with long white tips to the hairs.

Inhab. Mouth of the Columbia River.

	In.	Lin.
Length of the body and head	7	6
of the tail	4	6
of the hind foot	2	0

Mr. Waterhouse has informed me, that he believes this is the same species as that which I named, some years ago, in the Museum of the Zoological Society, *S. Douglasii*. That animal has entirely passed from my mind; and the collection of the Zoological Society having been packed up in a warehouse for the last two years, and consequently quite inaccessible, I am not able to verify the accuracy of this suggestion.

Grey-tailed Squirrel.—Sciurus griseocaudatus.

Plate XIII. Fig. 2.—Skull and Teeth, Plate XVIII. f. 7. 12.

Fur yellow and black, nearly equally mixed. Hair short, rather rigid, black, with a broad, yellow, subterminal band; spot of soft hair behind the base of the ears; the chin, throat, under parts of the body, inner sides of legs and feet, fox-coloured. Edge of the ears and whiskers black. Tail broad, flat, black, grey washed above; the hairs yellow, with two broad black bands, and a long grey tip, beneath.

Inhab. West Coast of America.

	In.	Lines.
Length of the body and head	10	0
of the tail	11	0
of the hind foot	2	3

This species is at once known from all the American squirrels I am acquainted with by the distinct black and white appearance of the upper surface of the tail, and the yellow and black bands of the hairs of which it is composed, which are only to be seen on the under surface. The latter character, and its larger size, separate it from the *Sciurus Boothiæ* (*Gray*, List Mam. Brit. Mus. 139. *S. Richardsonii*, *Gray*, Ann. and Mag. Nat. Hist. 1842, not *Bachmann*,) from Honduras, which has the same grey-washed tail, but is of a much darker colour, has black feet, is white beneath, and the hairs of the tail are black except at the tip. Being believed to be new, it is figured (Plate XIII. Fig. 1.) for comparison with the species discovered by this expedition.

Tamias Hindsii.

Plate XII. Fig. 1.

Tamias Hindsii, *Gray*, Ann. and Mag. Nat. Hist. 1842, 264. List Mam. Brit. Mus. 140.

Rufous brown with three rather close black streaks on the middle of the back, the outer ones edged with a white streak, having an indistinct black edge to it on its outer side. Head darker, with a reddish streak from the end of the nose, enclosing the eyes. Throat and beneath white. Feet rusty brown. Hairs of the body dark at their base. Tail roundish; hair red at the base, with a broad black subterminal band, a whitish tip. Ears hairy, blackish; hinder edge and tip white.

Inhab. California.

	In.	Lin.
Length of the body and head	5	6
of the tail	4	6
of the hind foot	1	6

From Nature by B. Waterhouse Hawkins.

Day & Haghe Lith^rs to the Queen

1. TAMIAS HINDSII. 2. SCIURUS BELCHERI.

Nat. Size

From Nature by B. Waterhouse Hawkins.

Day & Haghe Lith^rs to the Queen

1. SCIURUS BOOTHIÆ.—2. GRISEO-CAUDATUS.

LEPUS BENNETTII

Family—LEPORIDÆ.

Bennett's Hare.—Lepus Bennettii.

Plate XIV.

Lepus Bennettii, *Gray*, List Mam. Brit. Mus. 129.

Reddish grey, varied with black; head paler. Throat, lower part of shoulders, front of thighs, feet, hinder-side of tail and beneath, pale rufous. Tail alone black. Ears longer than the head, black tipped. Small spots on the middle of the forehead white.

Inhab. California.

The fur is very soft, of moderate length. The hair of the back and sides is pale grey, or dove-coloured, with a broad black band above, and reddish-grey tips, about as broad as the black bands. The hair of the head is shorter, darker at the base, and with narrower black bands. The ears are very long and broad, considerably longer than the head, covered externally with short close-set brown grisled hair, and fringed with rufous hair on the front edge, and with black at the tip. The under-sides of the feet are covered with dense rufous hair. The tail is rather long. The hinder part of the belly and the chin are whitish. The upper cutting teeth rather narrow, with a deep longitudinal groove a little on the inner edge of the tooth.

	In.	Lin.		In.	Lin.
Length of the body and head	20	0	Length of the hind foot	4	6
of the ears	5	3	of the fore legs and foot	6	9

This species is quite distinct from *L. Californicus* (*Gray*, Mag. Nat. Hist. 1836, 586.) and more resembles *L. longicaudatus* (*Gray*, l. c. 586.) of Magellan, in the peculiar colour of the hair.

I have named it in honour of my late much esteemed friend, Edward Turner Bennett, who, among the various species of animals which he so accurately and elegantly described, has added a hare (*L. nigricaudatus*, Proc. of Zool. Soc. 1833, 41.) from the same country, which appears to be quite distinct from the one under consideration.

"This Hare exists in considerable numbers on the open hilly country which surrounds the harbour of San Diego; and, together with a rabbit and the Californian quail, *Ortyx Californicæ*, offered some amusement to our sportsmen, who, indeed, were rather confounded by the abundance of their sport."—Ed.

Family—HYSTRICIDÆ.

The Quilled Rat.—Chætomys subspinosus.

Plate XVIII. Fig. 1 to 6.—Skull and Teeth.

Chætomys subspinosus, *Gray*, Proc. Zool. Soc., 1843. List Mam. Brit. Mus. 123.
Hystrix subspinosa, *Licht.*, *Kuhl*, Beitr., 71, *Pr. Max.* Abbild.

This animal is easily separated from the other South American prehensile-tailed Porcupines by the slenderness and flexible nature of its spines, and also by the conformation of the grinders and form of the skull, which has now been figured for the first time. Each of the upper grinders consists of a doubly folded plate, with a single plate between them. Each of the lower grinders has two sinuous folds on the inner side, and one rather in front of the middle of the outer side; the front tooth on each side is rather the narrowest. These teeth are intermediate in form between those of the American Porcupines and the Agouties (*Dasyproctina.*)

Dasyprocta punctata.

Plate XV.

Dasyprocta punctata, *Gray*, Ann. and Mag. Nat. Hist. 1842. 264. List Mam. Brit. Mus. 123.

Uniformly grisled with greenish yellow. Hair black, with greenish yellow rings. Hair of the back scarcely elongate, and ringed to the base. Throat yellow. Feet rather blacker.

Inhab. Tropical America.

Dasyprocta nigra.

Plate XVI.

Dasyprocta nigra, *Gray*, Ann. and Mag. Nat. Hist. 1842. 265. List Mam. Brit. Mus. 128.

Black grisled, with white; shoulder and haunches blacker. Legs black; throat grey; belly rather greyer. Hair of the back elongate, flattened, and white at the base.

Inhab. Tropical America.

From Nature by B. Waterhouse Hawkins

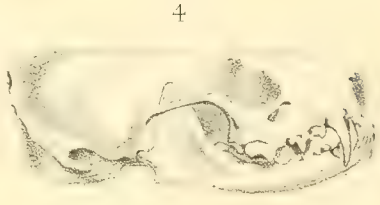
Day & Haghe lith.rs to the Queen

LASYPROCTA PUNCTATA

½ Nat. Size

DASYPROCTA NIGRA

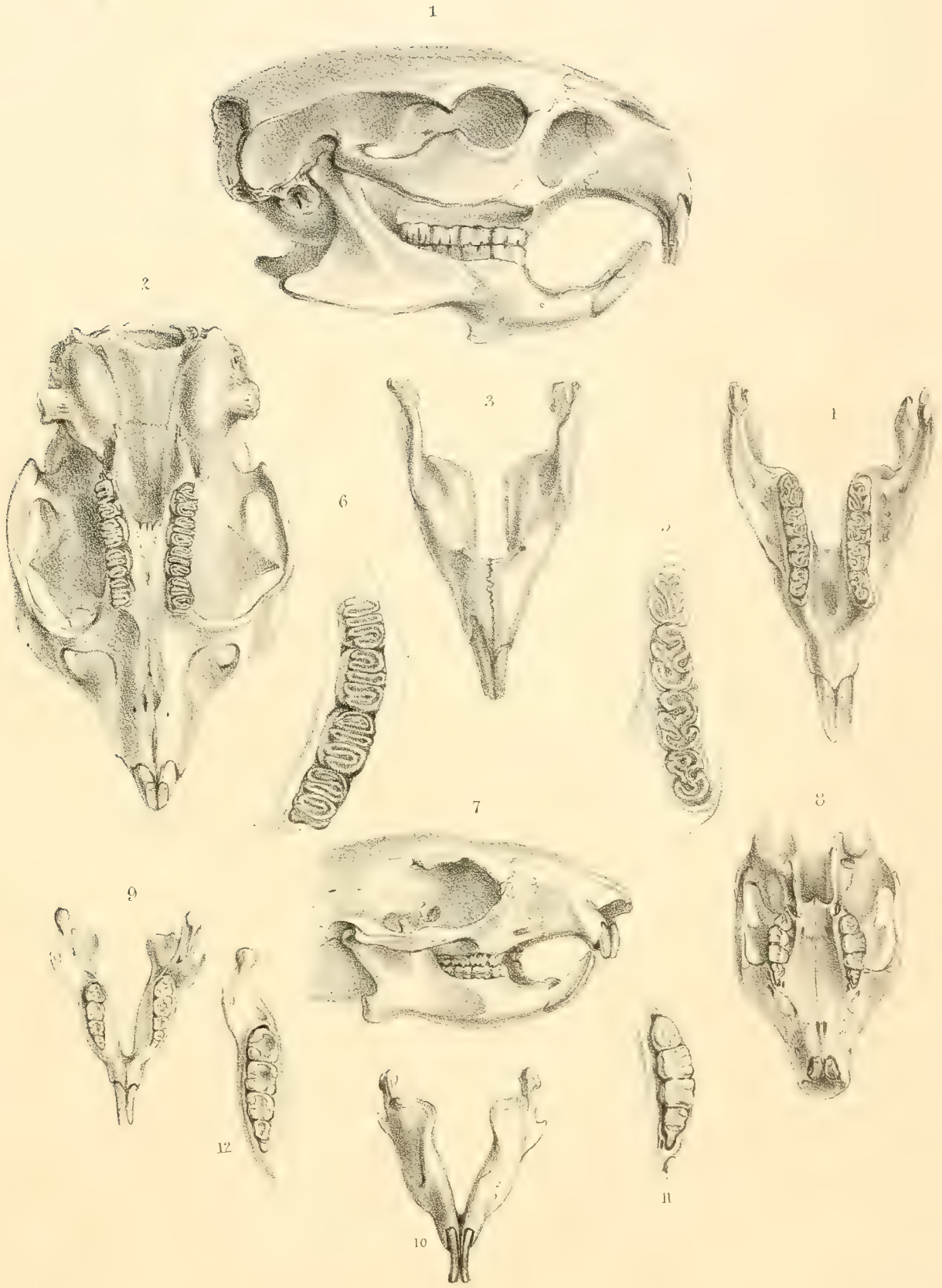
½ Nat.ª Size



From Nature by E. Waterhouse Hawkins

Day & Haghe lith.rs to the Queen.

1 2 3 SCULL OF PROCYON PSORA
4 5 6. ——— MUSTELA XANTHOGENYS.



From Nature by B. Waterhouse Hawkins

Day & Haghe Lith.rs to the Queen.

1_6. CHÆTOMYS SUBSPINOSUS.
7_12. SCIURUS GRISEOCAUDATUS.

BIRDS.

BY

JOHN GOULD, ESQ., F.R.S., ETC.

Drawn by J Gould on Stone by P Waterhouse Hawkins

Printed by C Hullmandel

AUROPHAGA

½ Nat Size

BIRDS.

Family—HALCYONIDÆ.

Halcyon saurophaga. *Gould.*

Plate XIX.

Halcyon saurophaga, Gould, in Proc. of Zool. Soc., July 25, 1843.

Spec. char. *Halc. capite, collo, dorso superiore, et corpore subtùs albis, cæteris partibus saturatè cæruleis, dorso virescente.*

Head, neck, upper part of the back, and all the under surface white, with the exception of the lores, which are black, and a narrow longitudinal mark immediately behind the eye, which is deep blue; the remainder of the upper surface, wings, and tail deep blue, tinged with green on the back and scapularies; bill black, with the basal portion of the under mandible horn colour; tarsi and feet blackish-brown, with a tinge of purple.

Total length, $10\frac{1}{2}$ inches; bill, $2\frac{3}{4}$; wing, $4\frac{3}{4}$; tail, $3\frac{3}{4}$; tarsi, $\frac{3}{4}$.

Inhab. New Guinea.

This species is in every respect a typical *Halcyon*, and differs from every other member of the genus yet discovered, particularly from that called *Alcedo leucocephala*, by Latham, which specific term might be much more appropriately applied to the present bird. One specimen only occurs in the collection, and that was procured in New Guinea—a country whose natural productions are so little known, that much new and interesting matter may be expected whenever its forests are explored.

In size the *Halcyon saurophaga* must be considered as one of the largest of the genus yet described, being fully a third larger than the *Halcyon collaris* of Java, and nearly equalling in dimensions the Fieldfare (*Turdus pilaris*) of Europe.

The food of this species, like that of the other members of the genus inhabiting Australia, consists of lizards and insects, to which in all probability crabs and other crustaceans are added, whenever the bird visits situations where they can be procured.

The figure is rather more than half the natural size.

Family—PIPRIDÆ.

Pipra linearis. *Bonap.*

Plate XX.

Pipra linearis, Bonap. Proc. of Zool. Soc., Part V. p. 113.
—— *fastuosa*, Less. Rev. Zool. 1842. p. 174.

Centre of the crown rich crimson, the feathers lengthened into a crest; back light blue; the remainder of the plumage deep black; bill black; feet yellowish-brown.

Total length, exclusive of the two centre tail feathers, 4 inches; bill, $\frac{1}{2}$; wing, $2\frac{3}{4}$; lateral tail feathers, $1\frac{3}{8}$; two central tail feathers, 6; tarsi, $\frac{3}{4}$.

Inhab. Realejo, Central America.

This beautiful species of Pipra was first described by the Prince of Musignano, in the Proceedings of the Zoological Society as above quoted, when characterizing some interesting birds from Mexico; a fact with which M. Lesson appears to have been unacquainted when he subsequently named it in the Revue Zoologique *Pipra fastuosa*. It differs from all others I have ever had an opportunity of examining, in the lengthened form of the central tail feathers, which are nearly double the length of the body, and in the feathers of the forehead being lengthened, erected, and inclined over the nostrils.

One specimen only was procured, and this has been presented by the Lords Commissioners of the Admiralty to the United Service Institution, in Middle Scotland Yard, in which collection it is deposited.

The figure is of the natural size.

"Of the collections of Birds made during the voyage of the Sulphur, a portion was sent to England by the Isthmus of Panama, of which a selection was, by the Lords Commissioners of the Admiralty, presented to the United Service Museum, and others to the Zoological Society of London. The chief bulk was brought home in the vessel, from which a selection of all such species as were not previously in the British Museum has been made for that institution, and these appear to amount to a considerable number; and on the same understanding the collection of the Zoological Society has recently received some interesting additions."—Ed.

Drawn by J Gould, on Stone by B Waterhouse Hawkins

Printed by C Hullmandel

PIPRA LINEARIS Bonap

Nat: Size.

Drawn from nature by [illegible] Wesermann & the Hawdons

Printed by C Hullmandel

Pipra vitellina. *Gould.*

Plate XXI.

Pipra vitellina, Gould, in Proc. of Zool. Soc., July 25, 1843.

Spec. char. *Pip. verticè, vittâ dorsali, alis, caudâque nigris; mento, gulâ, pectore et torque nuchali vitellinis; partibus reliquis olivaceo-viridibus.*

Crown of the head, band across the back, wings, and tail black; chin, throat, ear-coverts, chest, and collar round the back of the neck beautiful yolk-of-egg yellow; rump and upper tail coverts olive-green; abdomen and under tail coverts paler olive-green, into which the yellow of the chest gradually mingles; bill black; legs yellowish-brown.

Total length, $3\frac{3}{4}$ inches; bill, $\frac{5}{8}$; wing, 2; tail, $1\frac{1}{8}$; tarsi, $\frac{3}{4}$.

Inhab. Panama.

The specimen here figured was procured by Mr. Hinds at Panama, and is the only one I have seen. It is now in the British Museum.

The figure is of the natural size.

Family—FRINGILLIDÆ.

Linaria? coccinea.

Plate XXII.

Fringilla coccinea, Lath. Ind. Orn. vol. i. p. 444. Gmel. Linn. vol. i. p. 921. Shaw's Zool. vol. ix. p. 454.

Scarlet Finch, Lath. Gen. Syn. vol. iii. p. 270. Ib. Gen. Hist. vol. vi. p. 69.

The whole of the plumage rich rusty-red, deepening into brownish-red on the back; wings and tail brown, margined with rusty-red; bill horn colour; feet black.

Total length, 4 inches; bill, $\frac{7}{16}$; wing, $2\frac{1}{4}$; tail, $1\frac{3}{4}$; tarsi, $\frac{3}{4}$.

Inhab. Sandwich Islands.

This pretty species of Finch, which I have provisionally placed in the genus *Linaria* with a mark of doubt, is a native of the Sandwich Islands, and has been described by Latham and the older writers; but as no figure of it appears to have been published, it will form an interesting addition to the present work. It slightly differs from Latham's description in the much smaller size of the bill, and in the absence of the black tips to the primaries.

The figures represent the male of the natural size.

Leucosticte griseogenys. *Gould.*

Plate XXIII.

Leucosticte griseogenys, Gould, in Proc. of Zool. Soc., July 25, 1843.

Spec. char. *Leuc. fronte nigrâ, genis et occipite cinereis; reliquis partibus fuscis, tectricibus alarum, tectricibus caudæ superioribus et inferioribus, lateram et abdominis plumis roseo latè marginatis.*

Forehead and throat shining black; cheeks and back of the head grey; general plumage umber-brown; the wing coverts, upper and under tail coverts, flanks and abdomen largely tipped with beautiful rosy-red; primaries and tail feathers brown, faintly margined with rosy-red; bill yellow; feet black.

Total length, $7\frac{1}{2}$ inches; bill, $\frac{5}{8}$; wing, $4\frac{1}{2}$; tail, $3\frac{1}{2}$; tarsi, 1.

Inhab. Russian America.

This is one of the finest and most interesting of the Fringillidæ that has come under my notice for some years; it is nearly allied to the *Leucosticte tephrocotis* of Swainson, (Fauna Boreali-Americana, Birds, page 265, pl. 50), but differs from that species in the greater depth of its colouring, in the cheeks as well as the hind head being grey, and in the greater abundance of the rosy red hue upon the abdomen and under tail coverts.

The figures are nearly one-third less than the natural size.

Cactornis inornatus. *Gould.*

Plate XXV.

Cactornis inornatus, Gould, in Proc. of Zool. Soc., July 25, 1843.

Spec. char. *Cact. corpore superiore nigrescente-fusco, singulis plumis olivaceo-fusco non sine tincturâ rufescente marginatis; gulâ et corpore inferiore fulvis, plumis notâ centrali obscuriore.*

Crown of the head and all the upper surface blackish-brown, each feather margined with reddish-olive-brown; the secondaries, wing coverts, and tail being more broadly margined, and inclined to buff; throat and under surface buff, each feather having a darker centre; bill horn colour; the upper mandible darker than the lower; feet blackish-brown.

Total length, 4 inches; bill, $\frac{1}{2}$; wing, $2\frac{3}{4}$; tail, $1\frac{3}{4}$; tarsi, $\frac{3}{4}$.

Inhab. Bow Island.

Printed by C Hullmandel

EUCOSTICTE GRISEOGENA

Nat: Size

This bird, which is in all probability a female, is from Bow Island, and is, I believe, the only insessorial form that has been brought from thence. Only a single example was procured, and its principal interest consists in its forming an additional species of a small group of birds inhabiting the Galapagos, to which islands they had hitherto appeared to be peculiar. The specimen above alluded to was presented by the Lords Commissioners of the Admiralty to the Zoological Society of London, whose Museum it now enriches.

The figure is of the natural size.

"Bow Island has truly little to boast of in its ornithology, since the only birds seen by us during a residence of six weeks at this *Atol* coral island were doves, the above new species of Cactornis, plover, a few black and white tern which appear attached to these situations, and herons; and none of these were at all numerous. The *Cactornis inornatus* was usually noticed about the lowly bushes of *Petesia carnea*, the succulent fruit of which most probably constitutes its chief food."—Ed.

Family—NECTARINIADÆ.

Nectarinia flavigastra. *Gould.*

Plate XXIV.

Nectarinia Flavigastra, Gould, in Proc. of Zool. Soc., July 25, 1843.

Spec. char. *Nect. supernè flavescente olivacea; linea superciliari et corpore subtùs nitidè flavis.*

Crown of the head, ear coverts, and all the upper surface yellowish-olive; stripe over the eye and all the under surface bright yellow; bill and feet black.

Total length, $4\frac{1}{4}$ inches; bill, $\frac{3}{4}$; wing, 2; tail, $1\frac{1}{8}$; tarsi, $\frac{5}{8}$.

Inhab. New Ireland.

Upon submitting this bird to the inspection of Sir William Jardine, Bart., who has recently been engaged in investigating and publishing a monograph of the group to which it belongs, he informed me that it is entirely new; from which circumstance I am induced to give it a place in the Zoology of the Voyage of the Sulphur.

A single specimen only was obtained by, and now forms part of the collection of, J. O. Goodridge, Esq., Assistant-Surgeon of H.M.S. Starling.

The figures are of the natural size.

Family—PSITTACIDÆ.

Coryphilus Dryas. *Gould.*

Plate XXVI.

Coryphilus Dryas, Gould, in Proc. of Zool. Soc., Part X. p. 165.

Spec. char. *Cor. vittâ frontali metallicè viridi, cærulescente verticem versus; hujus plumis elongatis et saturatè cæruleis; dorso et alis obscurè viridibus, uropygio, caudæ tectricibus, et crisso pallidè viridibus, caudæ rectricibus albis, marginibus pallidè virescenti-cæruleo tinctis; loris albis, pectore vittâ saturatè cæruleâ ornato; abdomine albo, femoribus saturatè cæruleis.*

A band of verditer-green crosses the forehead, changing into blue towards the crown, the feathers of which are lengthened and of a deep blue, with a narrow line of shining paler blue down the centre of each; back and wings dull verditer-green; rump, upper and under tail coverts light verditer-green; primaries black, margined on the outer webs with deep greenish-blue; tail feathers white, gradually passing into pale greenish-blue on their margins, and the shafts brown; lores white; throat and front of the neck deep blue, each feather with a spot of white at the tip; breast crossed by a band of deep blue; abdomen deep blue, each feather largely tipped with white; thighs deep blue; bill dark horn colour; feet yellowish white.

Total length, $7\frac{1}{4}$ inches; bill, $\frac{7}{16}$; wing, $4\frac{3}{4}$; tail, $3\frac{1}{4}$; tarsi, $\frac{1}{2}$.

Inhab. Marquesas Islands.

I look upon this bird with great interest, since it forms an additional species of a limited but very beautiful group of the Psittacidæ, whose natural habitat seems to be confined to the islands of the Southern Ocean.

From the indistinct character of the markings of the throat and abdomen, the bird from which the above description was taken would appear to be somewhat immature.

The figures are about two-thirds of the natural size.

Drawn by J.Gould, on Stone by B.Waterhouse Hawkins.

Printed by C.Hullmandel

Psittacus flavinuchus. *Gould.*

Plate XXVII.

Psittacus flavinuchus, Gould, in Proc. of Zool. Soc., July 25, 1843.

Spec. char. *Psitt. viridis, vittâ nuchali nitidè flavâ remigum primorum pagoniis internis nigris, remigis primi pagonio externo saturatè cæruleo; reliquorum pagoniis externis ad basin saturatè viridibus, exinde cæruleis remigum minorum pagoniis externis coccineo, viridi et cæruleo pictis, rectricibus utrinqùe tribus externis cum pagoniis internis ad basin coccineis.*

Head, throat, and under surface light green; the feathers on the sides of the neck slightly margined at the tip with black; at the back of the neck a broad band of beautiful yellow; back, scapularies, and wing coverts dark green, the latter with paler edges; first primary black on the inner web, deep blue on the outer; the inner webs of the remainder of the primaries black; the basal third of their outer webs green, and the remainder of their length deep blue; the whole very slightly tipped with buff; first four secondaries black on their inner webs, their outer webs crimson for more than the basal half of their length, then green, and lastly deep blue, the two latter colours gradually blending with each other; the rest of the secondaries black on their inner webs, and green on their outer, with a spot of deep blue near the extremity; the tail is yellowish green, crossed in the middle by a broad band of dark green, and the three lateral feathers with a patch of crimson on their inner webs; basal portion of the inner webs of all the wing feathers on their under surface deep grass green; bill yellowish horn colour; feet mealy white.

Total length, 14 inches; bill, $1\frac{3}{8}$; wing, 9; tail, $5\frac{3}{4}$; tarsi, 1.

Inhab. Shores of South America and the Pacific.

The figure is about one-third of the natural size.

Family—RAMPHASTIDÆ.

Pteroglossus erythropygius. *Gould.*

Plate XXVIII.

Pteroglossus erythropygius, Gould, in Proc. of Zool. Soc., Part XI. p. 15.

Spec. char. *Pter. vertice, facie, mento, et dorso superiore nitidè virescenti-nigris; alis caudâque sordidè fuscescenti-viridibus; dorso inferiore, uropygio, et caudæ tectricibus splendidè sanguineis; corpore inferiore flavo, pectore superiore sanguineo tincto, inferiore vittâ coloribus nigro et sanguineo commixtis, fasciato.*

Crown of the head, sides of the face, chin, and upper part of the back shining greenish black;

wings and tail dull brownish green; lower part of the back, rump, and upper tail-coverts shining blood-red; under surface yellow, stained on the chest with blood-red, and crossed on the breast by a band of mingled black and blood-red; bill bordered at the base by a narrow line of dull white; the remainder of the bill yellowish horn colour, with a broad stripe of black along the upper mandible near the cutting edge, and the tip of the under mandible black; feet greenish black.

Total length, 18 inches; bill, 5; wing, $6\frac{1}{4}$; tail, $7\frac{1}{2}$; tarsi, $1\frac{1}{4}$.

Inhab. Realejo, Central America.

This bird is about the same size as *Pteroglossus Aracari* and *P. pluricinctus*, to both of which species it is nearly allied.

The figures are about half the natural size.

"In our examination of the west coast of America from south to north, the *Ramphastidæ* were first seen at Atacames, which is a little south of the equator; and they were subsequently frequently noticed at the different places touched at as far as the Gulf of Fonseca, in 13° 17′ N. Lat. This is, however, most certainly, not their geographical limit, and probably not even on the coast."—Ed.

Family—CUCULIDÆ.

Coccyzus ferrugineus. *Gould.*

Plate XXIX.

Coccyzus ferrugineus, Gould, in Proc. of Zool. Soc., July 25, 1843.

Spec. char. *Cocc. capite cinereo, dorso alisque saturatè ferrugineo-fusco, colore ad apices remigum primorum pallescente; caudâ in medio fuscâ, gradatim ad rectrices externas albescente; corpore subtus fulvo.*

Head grey, tinged on the crown with ferrugineous; back and wings dark rusty brown, becoming paler towards the extremities of the primaries, which are brown on their inner webs at the tip; two centre tail feathers sandy buff, passing into brown at the tip; the two next on each side sandy at the base deepening into brown, which is darkest on the outer web, that nearest the central feathers slightly, and the next largely tipped with white; the two lateral feathers on each side are buff at the base, passing into white, the inner one of the two with a line of brown down the basal two-thirds of its length; all the under surface buff, palest on the throat; bill olive black; under mandible yellow at the base; feet black.

Total length, $11\frac{1}{2}$ inches; bill, $1\frac{1}{8}$; wing, $5\frac{1}{4}$; tail, $6\frac{1}{4}$: tarsi, $1\frac{1}{8}$.

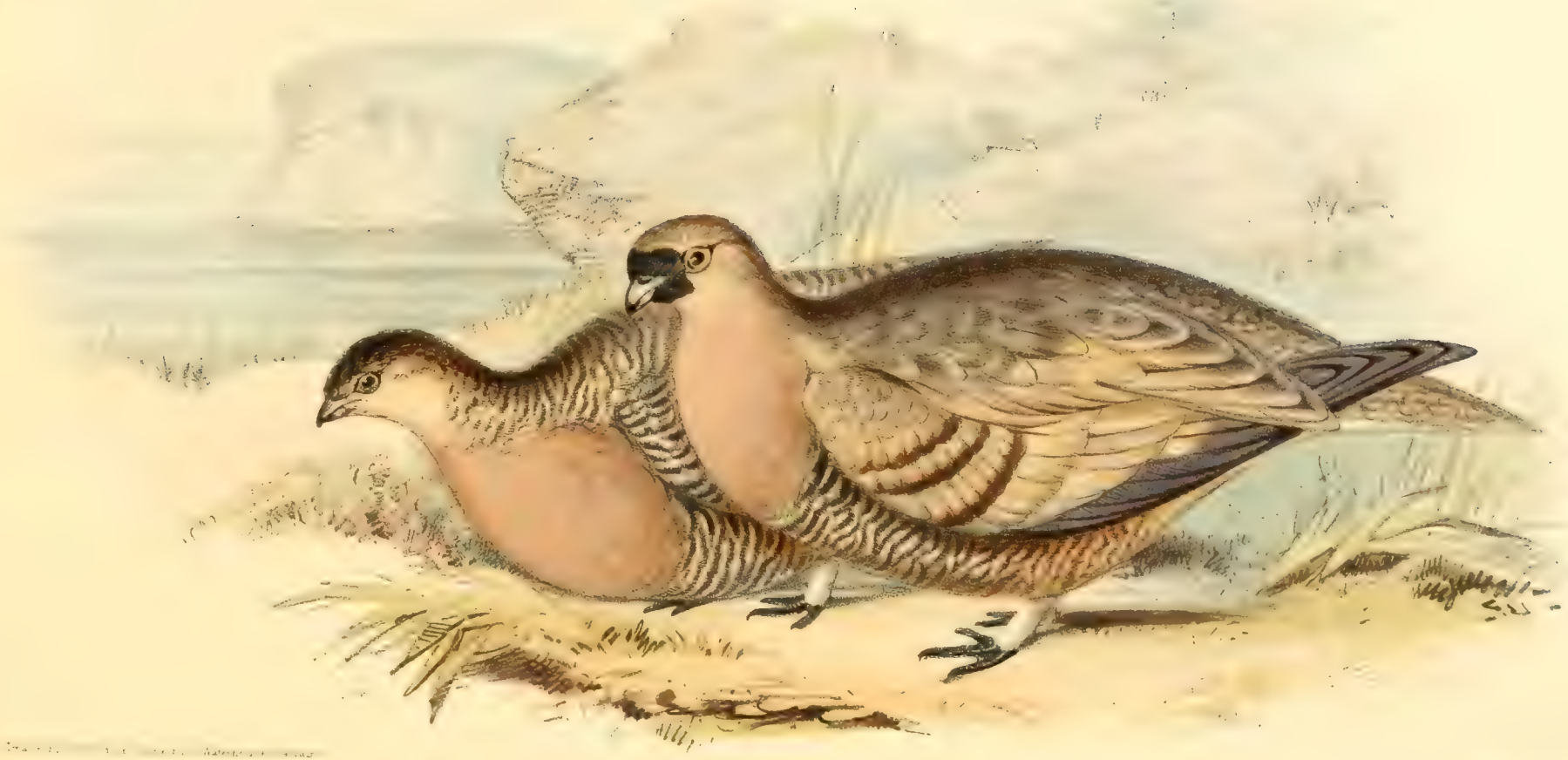
Inhab. Cocos Island, North Pacific.

...by J. Gould. on Stone by B. Waterhouse Hawkins

Printed by C. Hullmandel

COCCYZUS FERRUGINEUS. Gould.

⅔ Nat: Size



The figure is about half the natural size.

"The Cocos Island here indicated, is that situated in the vicinity of the Bay of Panama, but still at some distance from the main land. It consists of mountainous land, a few miles only in circumference, and having been constantly exposed to a warm and moist atmosphere, it exhibits a most luxuriant tropical vegetation. This latter is a fragment from the continent, and possesses nothing to distinguish it except its great luxuriance, and the present new bird is almost without exception the only novelty our exertions here provided us with. The only available indigenous productions of the island are cocoa-nuts; and previous voyagers having left some pigs and goats, they have multiplied in the higher land, particularly the latter. Several attempts that have been made to introduce tropical fruits have met with little success, though we were sanguine that some pine apples and water-melons planted by ourselves would succeed."—Ed.

Family—TETRAONIDÆ.

Pterocles personatus. *Gould.*

Plate XXX.

Pterocles personatus, Gould, in Proc. of Zool. Soc., Part XI. p. 15.

Spec. char. Mas. *Pter. plumis a basi rostri, usque ad oculos, intensè nigris; capitis reliquis partibus, collo, et pectore arenaceo-cervinis, non sine tincturâ vinosâ ad basin colli; dorso vinoso-fusco; caudæ tectricibus pallidè fuscis, notis irregularibus cervinis per plumas in lineis obliquis ordinatis, crebrè guttatis.*

Fœmina facie nigrâ caret.

Male.—Feathers surrounding the base of the bill, as far as the eyes, deep velvety black; remainder of the head, as well as the neck and chest, sandy buff, tinged with vinous at the base of the neck, both above and below; back vinous brown; wings sandy buff, the coverts tipped with dark brown, which colour forms three semicircular fasciæ across the wing; primaries and secondaries dark brown, the latter marked irregularly with sandy buff on the basal half of their outer margins; rump and upper tail-coverts light brown, with numerous irregular marks of buff, arranged in oblique lines down the length of the feathers; tail-feathers deep brown, crossed on their outer webs with decided, and on the inner with irregular bars of buff, all the feathers largely tipped with buffy white, all the under surface crossed with small bars of dark brown, light brown, and buff; under tail-coverts sandy buff.

Female.—Differs in not having the black face, in having all the upper as well as the under surface of the body barred like the latter part in the male; the wings numerously barred with brown, and the under tail-coverts sandy red.

Total length, 13 inches; bill, $\frac{7}{8}$; wing, $8\frac{3}{4}$; tail, 4; tarsi, 1.

Inhab. Majambo Bay, Madagascar.

The figures are rather less than half the natural size.

"This interesting species was found abundant in the scrubby groves of *Pandanus* skirting a portion of the bay. Specimens in pairs have been deposited in the fine and daily increasing collection of birds of the British Museum, and also in the valuable collection of the Zoological Society."—Ed.

Family—CRACIDÆ.

Penelope albiventer. *Less.*

Plate XXXI.

Penelope albiventer, Less. Rev. Zool. 1843.
Penelope leucogastra, Gould in Proc. of Zool. Soc., July 25, 1843.

Head and upper part of the neck olive brown, each feather margined with grey; back, wings, and upper-tail coverts rich brown with a bronzy lustre; tail bronzy green margined with bronzy brown, all but the two centre feathers broadly tipped with pure white; chest dull brown, gradually passing into the white of the abdomen, thighs, and vent; under tail-coverts light buff; bill black; feet black.

Total length, 18 inches; bill, $1\frac{1}{4}$; wing, 8; tail, 9; tarsi, 2.

Inhab. Central America.

The figures are one-third of the natural size.

Since characterizing this species in the Proceedings of the Zoological Society, I have seen the description of a bird in M. Lesson's "Revue Zoologique," which I believe to be identical with the present; and as M. Lesson's name has the advantage of priority, my own must necessarily give place; it will be seen that we had both selected the same character for a specific appellation.

Drawn by J. Gould on Stone by E. Waterhouse Hawkins.

Printed by C. Hullmandel

PENELOPE ALBIVENTER. Lefs.

⅜ Nat: Size

Drawn by J Gould on Stone by [illegible]

Family—PELECANIDÆ.

Phalacrocorax perspicillatus. *Pall.*

Plate XXXII.

Phalacrocorax perspicillatus, Pall. Zoog. Rosso-Asiat., Vol. ii. p. 303.
Pelecanus Urile, Lath. Gen. Hist., Vol. x. p. 426 ?

Face and crest rich deep shining purple; neck deep greenish blue; the face and the upper part of the neck ornamented with some thinly dispersed, long, narrow hair-like, straw coloured feathers; body above and beneath deep glossy green: scapularies and wings deep purple primaries and tail black, the latter with white shafts; on each side of the abdomen at the insertion of the leg a large patch of white; bill blackish horn colour, lighter at the tip; naked part of the throat, corners of mouth, and naked skin of the coverts apparently rich orange.

Total length, 36 inches; bill, 4; wing, 14; tail, 9; tarsi, 3.

Inhab. Russian America.

Nearly allied to, if not identical with, but differs from the *Pelecanus Urile* of Latham in its much larger size, and in the ornamental plumes being dispersed over the face and sides of the neck, instead of on the front of the latter only.

The figures are one-fourth of the natural size.

"Our collection of Birds received some valuable additions at Sitka, from the liberality of Governor Koupreanoff, and amongst them was the present cormorant, and *Leucosticte griseogenys*, described at page 42. His efforts had been directed to the collection of as complete a series as possible, of the natural productions of the surrounding territory, for transmission to St. Petersburg; and without prejudicing this object, we were liberally supplied from his accumulated stores. Besides several very interesting birds, a few scarce animals were obtained, all of which have been deposited in our public collections, but necessarily are not mentioned here, where only what is new or requires illustration finds a place."—Ed.

Family—PROCELLARIDÆ.

Thalassidroma furcata.

Plate XXXIII.

Procellaria furcata, Lath. Ind. Orn. vol. ii. p. 825. Gmel. edit. Linn. vol. i. p. 561.

Fork-tailed Petrel, Lath. Gen. Syn. vol. vi. p. 410. Penn. Arct. Zool. vol. ii. No. 463. Lath. Gen. Hist. vol. x. p. 188.

Throat greyish white; all the upper and under surface shining silvery grey; wings dark slate grey, passing into silvery grey on the greater coverts; tail forked and grey, gradually deepening towards the tip; external web of the outer feather on each side white; under tail-coverts white; bill black; feet brown.

Total length, 8 inches; bill, $\frac{3}{4}$: wing, 6; tail, $3\frac{3}{4}$; tarsi, $\frac{7}{8}$.

Inhab. Sitka, Russian America.

The figures are of the natural size.

Family—LARIDÆ.

Larus brachyrhynchus. *Gould.*

Plate XXXIV.

Larus brachyrhynchus, Gould, in Proc. of Zool. Soc., July 25, 1843.

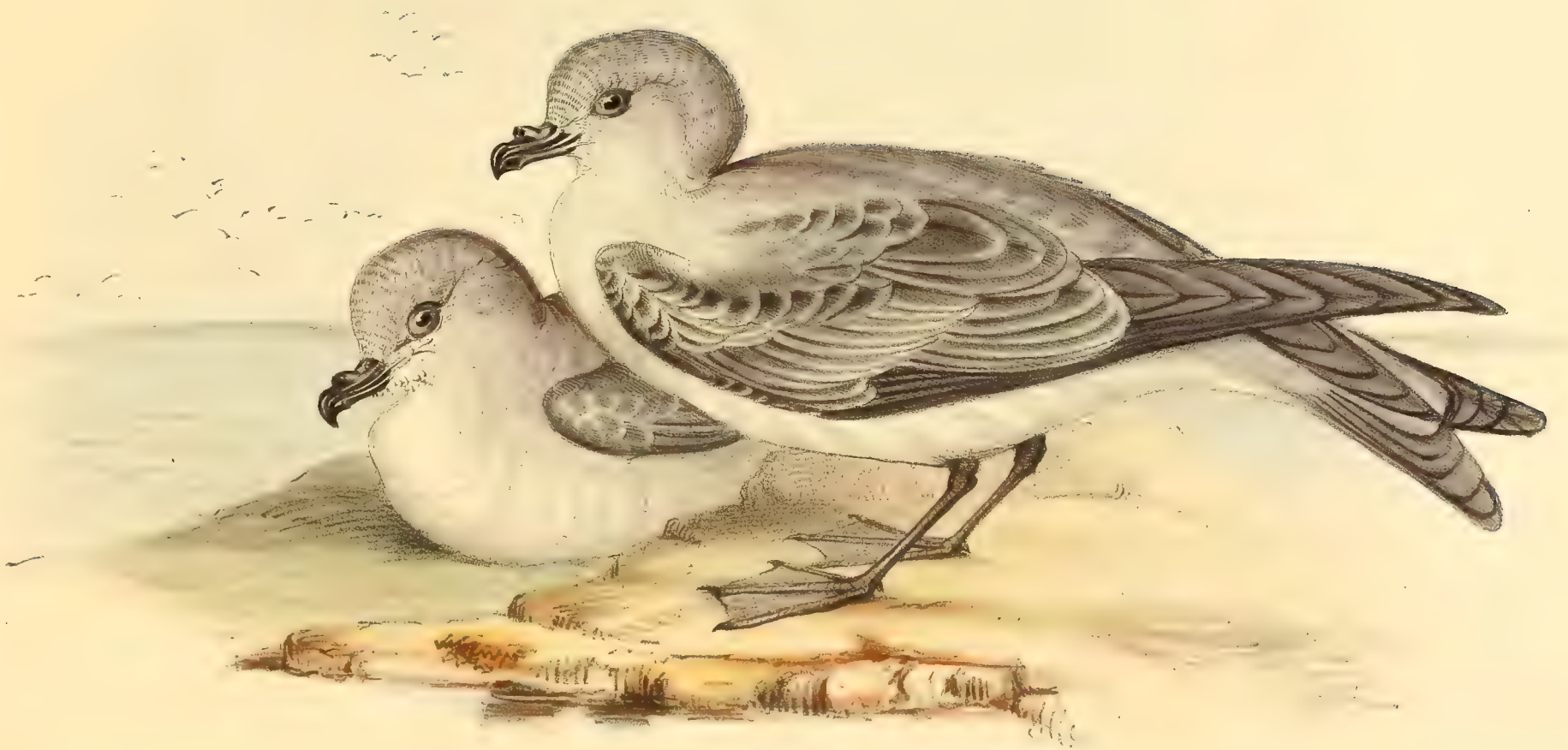
Spec. char. *Lar. capite, collo, corpore inferiore, uropygio crissoque albis; dorso alisque cinereis; remige primo, ad pagonium externum et ad apicem; remigibusque sequentibus tribus, ad apicem, nigris; remigibus secundo, tertio et quarto, notâ cinereâ terminali; quinto vittâ nigrâ et apice cinereo.*

Head, neck, all the under surface, rump, upper and under tail-coverts, and tail, pure white; back and wings, including the primaries, grey, passing into white at the tips of the scapularies, secondaries, and all but the first five primaries, which are thus marked:—the outer primary has its external web, and three inches of the tip of the inner web deep black; the next primary is tipped with black for three inches and a half on its outer, and two inches and a half on its inner web, and has a very minute speck of grey at the extreme tip; the third primary is tipped with black for two inches, and has a small spot of grey at the extremity; the fourth is tipped with black for an inch and a quarter, and has a larger spot of grey at the extremity than the third; and the fifth is crossed by an irregular band of black near the tip three-quarters of an inch wide, the extremity being grey, fading into white on the margin of the inner web; bill primrose yellow; feet orange yellow.

Total length, 14 inches; bill, $1\frac{1}{2}$; wing, $12\frac{1}{4}$; tail, $5\frac{1}{4}$; tarsi, $1\frac{1}{8}$.

Inhab. Russian America.

The figure is about one-third of the natural size.



Drawn by J.Gould on Stone by B.Waterhouse Hawkins.

Printed by C.Hullmandel

THALASSIDROMA FURCATA

Nat Size

Drawn by J. Gould on Stone by B. Waterhouse Hawkins.

LARUS BRACHYRHYNCHUS. G[illegible]

½ Full Size